

MANUFACTURERS' RECORD

A Weekly Southern Industrial and Hardware Newspaper.

Vol. 9. No. 23.
WEEKLY.

BALTIMORE, JULY 17, 1886.

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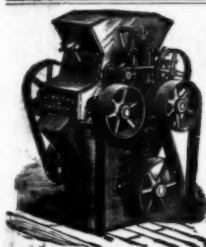
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— MINING MEN, —

AND OTHERS INTERESTED IN
Tunneling, Shaft-Sinking, Etc.

Engineers' Tables of Progress

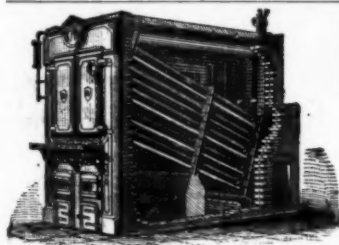
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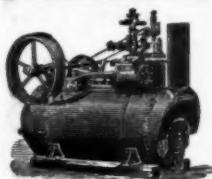
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18 Johnston Build'g, Cincinnati, O

R. L. WEEKS,
151 Griswold St., Detroit, Mich.



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8, 10 and 16 HORSE
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FOR DRIVING
Cotton Gins & Mills.

with Return Flue Boilers.

Illustrated Engine Pamphlet Sent Free.

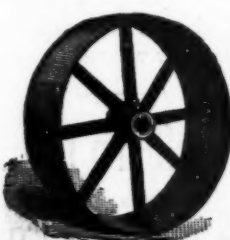
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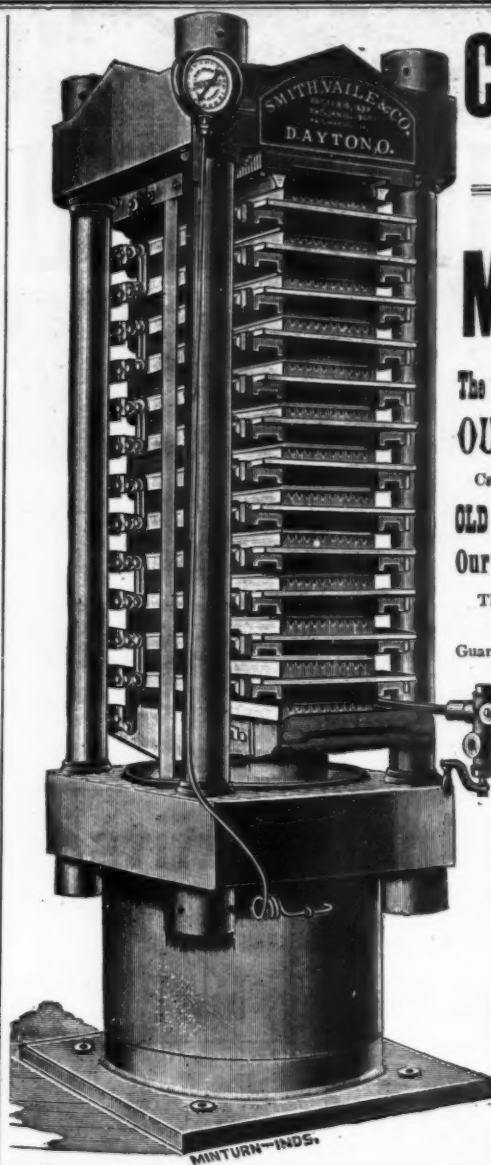
LIST OF SALES
 of the
WESTINGHOUSE
Automatic Engine
 in
NEW ENGLAND AND THE MIDDLE STATES ONLY

90 Days ending June 30, 1886.

		HORSE POWER
Plainfield Electric Light Co.	Plainfield, N. J.	150
" " (2d order,)	" "	150
Edison Electric Light Co.	New Bedford, Mass.	125
N. Y., L. E. & W. R. R. Planing Mill.	Buffalo, N. Y.	125
Allegheny Co. Electric Light Co., (9th order,)	Pittsburgh, Pa.	100
" " (10th order,)	" "	100
H. J. Roberts, Paper Mill.	Birmingham, Conn.	80
Trenton Electric Light & Power Co., (3d order,)	Trenton, N. J.	75
" " (4th order,)	" "	75
Union Depot P. R. R. Electric Light.	Pittsburgh, Pa.	75
" " (2d order,)	" "	75
A. B. Barry.	Moscow, Russia,	75
Pittsburgh Locomotive Works.	Pittsburgh, Pa.	75
Westinghouse Illuminating Co.	Schenectady, N. Y.	75
" " (2d order,)	" "	75
Keystone Electric Light Co.	Philadelphia, Pa.	75
" " (2d order,)	" "	75
" " (3d order,)	" "	75
Plainfield Electric Light Co.	Plainfield, N. J.	75
Lynchburg Ice and Refrigerator Co.	Lynchburg, Va.	60
S. H. Dow, Grist Mill.	Concord, N. H.	60
Brush Electric Light Co.	Buffalo, N. Y.	60
" " (16th order,)	" "	60
" " (17th order,)	" "	60
Ball Electric Light Co.	New York,	50
Arbuckle Bros., Coffee.	Brooklyn, L. I.	45
Fort William Henry Hotel.	Lake George,	35
Norristown Opera House.	Norristown, Pa.	35
U. S. Electric Light & Power Co.	Buffalo, N. Y.	25
" " (2d order,)	" "	25
Kendall Manufacturing Co.	Providence, R. I.	25
Winona Paper Co.	Holyoke, Mass.	25
Municipal Gas Light Co.	Albany, N. Y.	25
" " (2d order,)	" "	25
John Dwight & Co.	New York,	25
Prospect House.	Blue Mt. Lake, N. Y.	20
Penfold, Stead & Co.	Jamestown, N. Y.	15
Parish Manufacturing Co.	Parish, N. Y.	15
W. Jayne.	New York,	15
E. Balbach & Co., Smelters.	Newark, N. J.	15
" " (12th order,)	" "	15
W. Forward, Creamery.	Mechanicsburg, Md.	12
E. Balbach & Co., Smelters.	Newark, N. J.	10
" " (13th order,)	" "	10
Wilbur Gleason.	Chestertown, Md.	10
F. C. Reed.	Houstonville, Pa.	10
South Side Gas Light Co.	Pittsburgh, Pa.	10
Pittsburgh	" "	10
" " (2d order,)	" "	10
Allentown Gas Co.	Allentown, Pa.	10
Jamestown Knitting Mills.	Jamestown, N. Y.	10
Brush-Swan Electric Light Co.	Long Island City, L. I.	10

Total, Forty-Nine Engines, aggregating 2,492 Horse Power, of which twenty-one (43 per cent.) were REPEATED ORDERS.

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 Contracting and Consulting Engineers,
 17 CORTLANDT STREET,
 NEW YORK.



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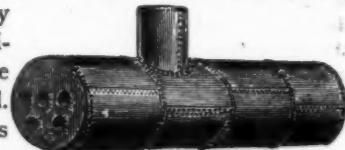
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(Made by the Tweedle system of hydraulic riveting).

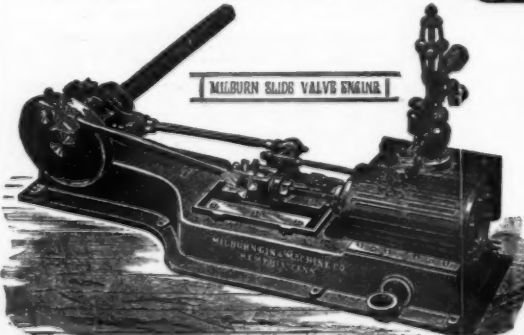
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Wiswell Ore Pulverizer and Amalgamator Combined.

The cost of this Mill is much less than any other machine of sufficient capacity to do the same amount of work.

It requires less power to run it, (10 horse being sufficient.)

The wear and tear of the Mill is much less than any other Quartz Mill doing the same amount of work, and the quality of the work done by it is greatly superior to work done in any other Quartz Mill now in use.

It crushes to a uniform fineness and makes no slimes, so that no sizing is required for concentration.

The Mill is equally well adapted to crushing and pulverizing of all classes of ores, either for amalgamation or concentration, and will pulverize and amalgamate from one-half to one ton per hour, according to character of ore and fineness of screens.

With ordinary care there is no loss of mercury by flouing, and consequent loss of gold, as in most other Mills where mercury is used in the Mill.

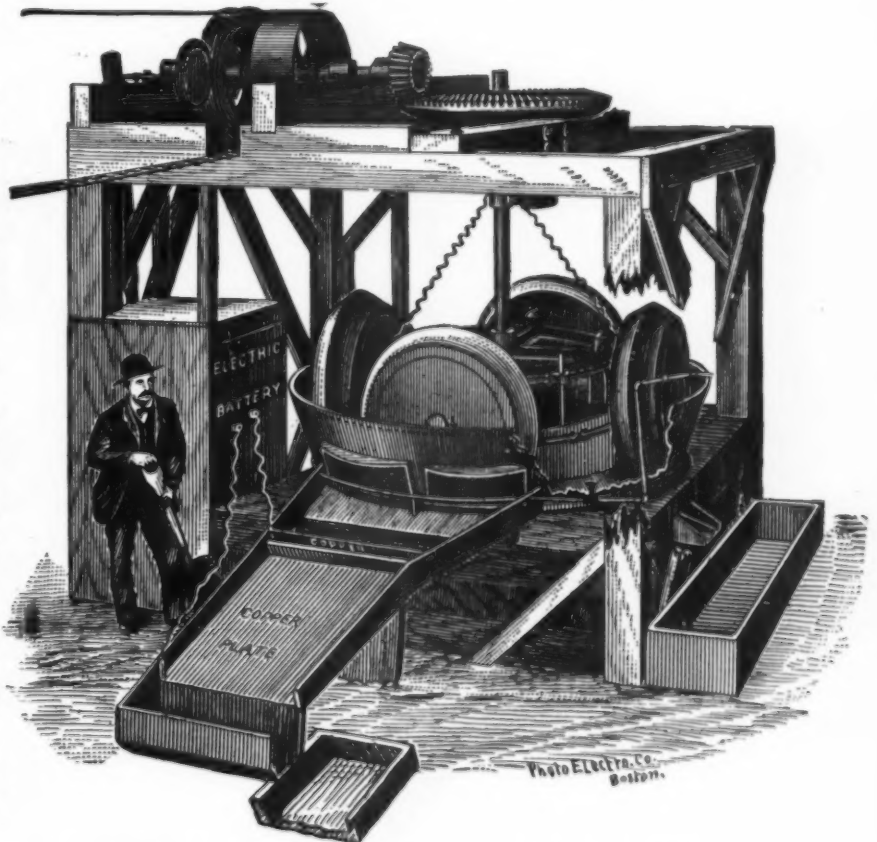
Amalgamation is carried on in the same operation with the crushing. The mercury is placed in the Mill in quantities varying from 10 to 40 pounds.

The application of electricity to the Mill for the purpose of cleaning and keeping the mercury alive has been to a very large extent superseded by the invention and introduction of the Mercury Trap in the Mill for the purpose of drawing off the mercury when charged with gold or on the slightest indication of flouing. By this ingenious device the mercury can be changed as often as desired without loss of time in either crushing or amalgamating. By opening this Trap the amalgam is discharged from the Mill in three minutes, and clean mercury introduced in its place.

To those familiar with running a Gold Mill this latter advantage will be greatly appreciated; in fact, it gives the mill-man full control of his work.

This Mill has been on exhibition at the foundry of Messrs. Bisbee & Endicott, at Chelsea, Mass., for the past 18 months, a good part of the time in active operation, and we have treated the most rebellious ores from many mining districts with most satisfactory results to the parties concerned.

The past year we have sold many Mills, which may be found in Michigan, North Carolina, Dakota, Montana, Idaho, Colorado, California, Mexico, Nova Scotia, etc. All those in operation are giving the most perfect satisfaction, as testimony will prove, and we will take pleasure in referring to any one of these on application.



We Furnish a Complete Mill for \$2,500, Delivered on Board Cars.

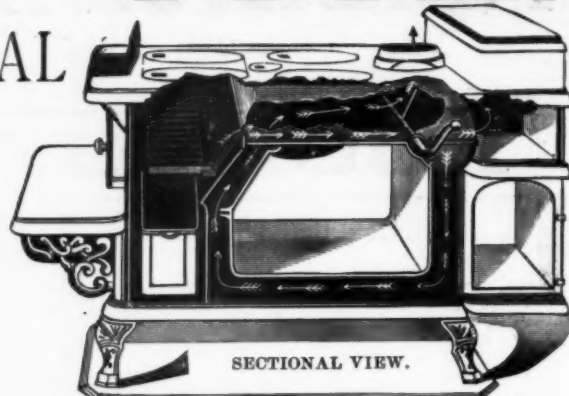
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The above print will illustrate the peculiar flue in our Climax Cook Stoves. This plan insures the even distribution of the heat to all parts of the oven. No other stove or range has this flue. Manufactured by

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EMPLOYING EWART'S DETACHABLE LINK BELTING.

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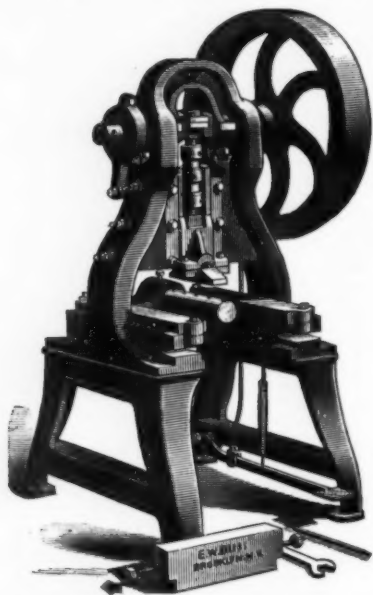
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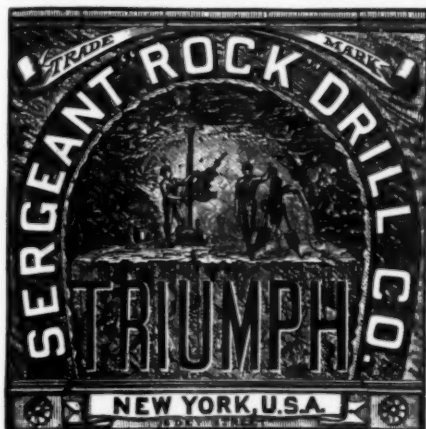
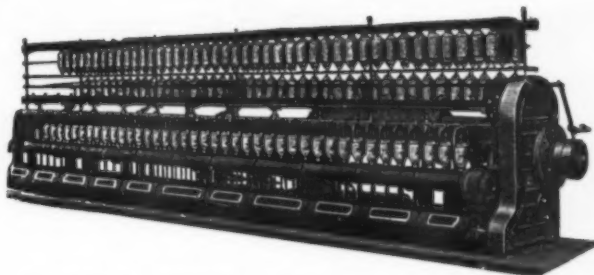
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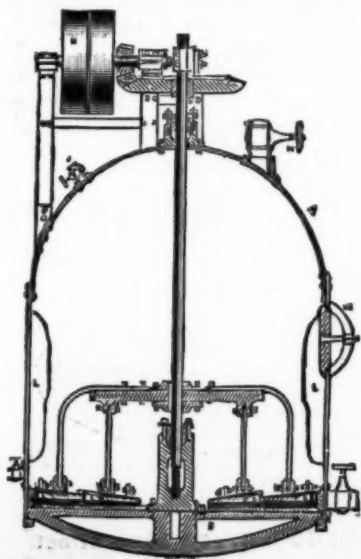
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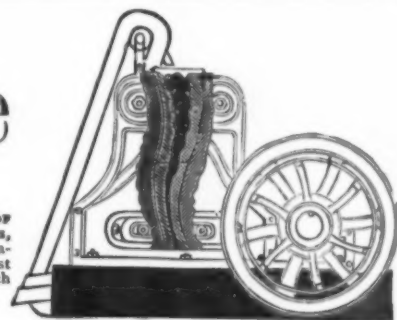
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This Machine will CRUSH AND PULVERIZE GOLD AND SILVER ORES to 20, 40, and 60 mesh fine, and from 20, 40 and 60 tons per day. The principles of this machine, making it superior to all others, are the peculiar concave and convex shape of the jaws, with concave and convex projections, which breaks, crumbles, stamps and pulverizes the ore with less power, wear and tear, than any other machine. MANUFACTURED BY

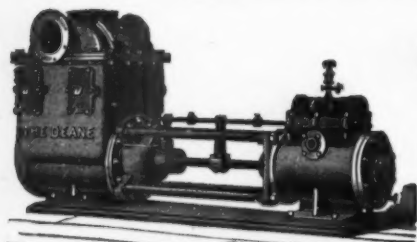
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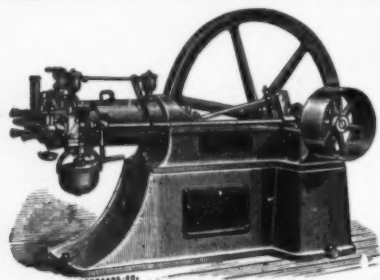
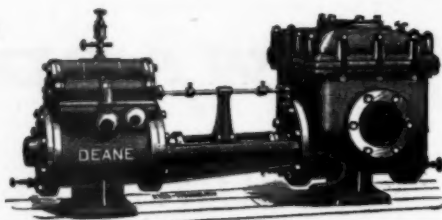
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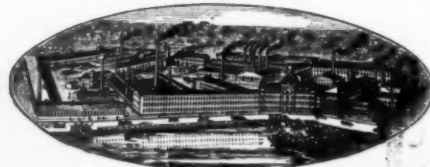
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BALTIMORE Manufacturers' Record.

Published Every Saturday by the
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BALTIMORE, JULY 17, 1886.

Patent Infringements.

The infringement of patents is one of the great evils of the day in the business world. No sooner does a patent become widely-known and of value, than attempts are made by men, whose conscientious scruples against wrong are not as strong as their desire to profit at the expense of others, to imitate it so closely as to deceive the public. In this way many a patentee has been robbed of the just rewards of his skill and labor in first bringing into existence something new and of intrinsic value. Dishonesty of this kind is just as much to be condemned as the dishonesty that picks a man's pocket, and yet it is a lamentable fact that it is not so regarded by very many business men. Patent infringers would not meet with much encouragement if it were not for the fact that for the sake of little larger profits or some similar inducement, many dealers, or middle-men between the manufacturers and the consumers, will handle the dishonest goods, thus aiding a fraud. If dealers would refuse to handle goods that are known to be infringements, they would help to break up this business and would at the same time save themselves from possible legal and financial difficulties. In an advertisement in this issue it will be noticed that an extensive manufacturing concern, having secured judgment against another firm for patent infringements, and these infringers having failed so that no damages can be collected from them, legal proceedings for damages will be entered against all dealers who have handled these goods. As the law in such a case is against the dealers, this ought to be a pretty strong reminder that it does not pay to handle goods that are known to be infringements upon patents.

Creameries in the South.

During the last twelve or eighteen months considerable attention has been given in parts of the South to the establishment of creameries. In portions of Virginia, in Kentucky, Tennessee and Mississippi this has been especially noticeable, and it is one of the very gratifying tendencies of the Southern people towards the diversification of their agricultural and manufacturing interests at the same time. Notwithstanding the very superior advantages possessed by a large part of the South for raising live stock—advantages that make the cost when properly managed much less than in the North or West—the South is now as in the past a large buyer of Western butter. The amount of Western butter consumed in the South, and often in the good live stock sections, is surprisingly large, while of cheese almost the entire consumption in the South comes from the North and West. In 1880 the State of New York made more butter than was made in fourteen Southern States, the entire production in the South being 112,000,000 pounds against 116,000,000 pounds in New York. The total production of butter in the United States in 1880 was over 800,000,000 pounds, of which the South made less than one-seventh. Of cheese 243,000,000 pounds were made in this country in 1880, and a goodly share of this was eaten in the South, although less than 2,000,000 pounds was made there. This is one of the drains on the South. Too many of the apparently little things for the house, as well as for the farm, that are used in the South and which could be profitably made there are purchased in the North. With all of its agricultural resources what a commentary upon this condition of things is the bare statement that the South made 2,000,000 pounds of cheese out of total of 243,000,000 pounds, and 112,000,000 pounds of butter out of total of over 800,000,000 pounds! The establishment of creameries in the South does good in two ways. It furnishes a profitable home market for milk, and this makes dairy farming a paying business and, at the same time, produces an article which is in universal demand, and for which the South now pays large sums to the North and West. Instead of the South using Western butter, it ought, with the advantages possessed for dairying, not only fully supply the home market, but also ship largely to the North and West. Wherever these creameries have been established in the South, so far as we learn, the farmers are delighted with their operations, and find in them a new source of considerable profit. In addition to butter making, the manufacture of cheese will doubtless become an important business of these creameries, and the time may not be very distant when the South will produce all the butter and cheese that her people consume. It is these

small industries, scattered here and there, attracting but little attention in view of the great enterprises that are being started from day to day in the South, that are essentially important to the growth and permanent prosperity of the whole South. When the Southern people raise their own foodstuffs and manufacture the thousand and one small things needed in daily life, then will come the day of great prosperity for that section.

Railroad Building in the South.

There was probably never before in the history of the South a more promising outlook than at present for a large amount of railroad building. In nearly every State from Virginia to Texas there is not only already very much activity in the construction of new roads, but plans have been matured for the early commencement of work upon many others, while the preliminary arrangements are being made for many more. Of these roads either under construction or on which work will shortly be commenced, quite a number are very extensive undertakings, destined to have an important influence upon the future of the South. In Virginia and West Virginia some important lines to open up magnificent mineral resources are under way, and there are also quite a number of short branch and connecting roads being built to develop coal and iron territory. The extension of the Norfolk & Western's Cripple Creek branch will bring into prominence a region of unsurpassed mineral wealth, where very excellent Bessemer ores are found in abundance. Two or three very promising projects for building roads from Roanoke—one down through a rich portion of Virginia, the Piedmont section of Carolina, and possibly on to Atlanta; and one from Roanoke through Craig county, where minerals are in vast abundance—are in a fair way of being carried through successfully. The Richmond & Chesapeake Railroad Co. have commenced work on a road from Richmond to Northumberland county, where the terminus will be on the bay shore, with a transfer across to connect at Crisfield, Md., with roads running to Philadelphia and New York. From Claremont, on the James river, a road is being built to Danville. In North Carolina, the Cape Fear & Yadkin Valley is being extended, the Carolina Central is pushing forward vigorously for Rutherfordton, while the Massachusetts & Southern Construction Co. is paralleling this road for a short distance and extending on in the direction of Charleston, and promising to extend their other end towards the West. The Richmond & Danville have decided to extend their road so as to reach Knoxville, bringing Asheville and Knoxville into direct connection and opening up one of the finest sections of the whole South; the same road is building on towards Murphy, where connections will be made via the new road of the Marietta & North Georgia to the far South. South Carolina has

some important roads under way, especially of narrow-gauge lines. Georgia is building the Georgia Midland, the Macon & Covington, the Savannah, Dublin & Western, and is preparing to build from Augusta to Chattanooga and from Columbus to Birmingham. In Alabama all railroad enterprises are pointing to the great coal and iron centers. The Georgia Pacific, from Birmingham to Columbus, Miss., is under way; work on the road to connect Birmingham and Kansas City is being hurried along; the Montgomery Southern is under construction towards Florida, while other projects almost too numerous to mention are either now under way or else getting into good shape for construction work. In Florida, Tennessee, Kentucky, Texas and Arkansas, the same remarkable activity is seen, and it is satisfactory to note that these projected roads appear to be in good hands and that they are to be built through sections where railroad facilities are badly needed, and where the agricultural, timber and mineral possibilities are so great as to assure a heavy traffic when completed. The South has entered upon a period of railroad building commensurate in activity with the great mining and manufacturing progress that is being made. With this activity in railroad construction, the great mining and manufacturing development that is going on and the steady increase in immigration, so noticeable in almost every Southern State, the South is certainly moving forward to greater prosperity than it has enjoyed since 1860. The only unfavorable feature is that the crops are less promising than last year, but with good weather this may be changed, and the yield may at the gathering time be larger than now indicated. Moreover, if the cotton crop is short, higher prices will doubtless partly counterbalance this.

THE Manufacturers' Gazette, of Boston, in reviewing the steel rail market, says that "most of the inquiries are for Southern roads, which can work their track-layers in the winter, and on such opportunities, on account of tidewater facilities, foreign makers are hammering the market hard. The lowest we have heard for English rails was £4 3s. 6d. cost, freight and insurance, landed in Florida, equal to about \$39. These were a popular make, and yet did not get the order away from the Yankee, whom the railway men speculate must have figured close to \$31 at the mill, or have secured a freight that is an unprecedented cut. The purchasing agents of three of the largest trunk lines are inquiring for prices on 20,000 to 35,000-ton lots, delivered in March next, but get very little satisfaction. The possibilities of natural gas and Southern pig iron may by 1887 revolutionize the rail pool and knock out their present bonanza on prices. In this connection is given the rumor that a large German rail concern is seeking to negotiate with a Southern plant to bring over its machinery, and by the early spring of next year start a competition with the rail mills."

Great Resources of Eastern Kentucky.

Mr. John R. Procter, State Geologist of Kentucky, is credited with saying:

"I have just returned from the immense coal fields of Powell, Wolfe, Breathitt and Lee counties. These samples of coal which you see here are the finest specimens of cannel and cokeing coal I ever saw. Not only are these counties rich in coal, but they are continually increasing in an agricultural yield. The corn, oats and meadows are in fine condition. In Breathitt, where I remained the longest, I noticed the people are orderly and attentive to business. Jackson, the county seat, has laid the foundation of a large academy, and established a circulating library of 2,000 volumes. There are no better people to be found in the State than you'll find in Breathitt. And let me say, I think if the newspapers of Kentucky would devote as much time to calling attention to the resources and evidences of thrift and general prosperity as they do to lawlessness, they would accomplish a vast more good to the State."

The suggestion of Mr. Procter that the newspapers of Kentucky pay more attention to making known the resources of the State might, with great advantage to the whole South, be adopted by the entire Southern press. While very many Southern papers are thoroughly alive to the importance of developing the material interests of their section, and are doing good work in this great cause, it is unfortunately too true that many give more attention to political matters and to sensational news than to what would benefit and help to improve the business interests of the South.

Good Roads.

We have had considerable to say lately about the absolute necessity for better roads in the South, hence the following regarding the macadamized roads of Kentucky will prove interesting. The Staunton, Va., Vindicator says:

In conversation with Gen. Echols, who has traveled over most of Kentucky, a State whose good roads are now famous throughout the Union, we heard some interesting facts of how the improvements came to be general all over the State. The first man that inaugurated the road improvement there was that famous old Presbyterian, Dr. Robert J. Breckenridge. He commenced by going to see his neighbors along a line of road. His plan was to ask each farmer, "How much is your land worth?" When told he would say, "Well, how much do you think a macadamized road would increase the value of it?" Being told \$10 or \$15 an acre, he would close in by saying, "Well, suppose you subscribe to a company we are forming to build a road to the amount of, say \$5 an acre of your farm." In this way private companies were formed. The roads cost \$2,000 a mile, of which the county court of each county, after it was satisfied that the private company was composed of responsible citizens, subscribed on behalf of the county to the stock to the amount of \$1,000 a mile. The roads were built, toll-gates put on them, and the stock paid the county and the stockholders a dividend. In this way Kentucky has become gridironed with metalled pikes.

Now look at the result of this; taking four counties in Kentucky, all rather small ones, Montgomery has ninety-nine miles of metalled pike; Clarke, the adjoining county, has one hundred and fifty miles; Fayette, which joins that, has two hundred and fifty miles, and Barbour, the next county to it, has three hundred miles—nearly eight hundred miles of macadamized road in four small counties. What has been the result in increasing values? Remember they are all small counties. The real estate in Montgomery is assessed at \$4,000,000, Clarke \$6,000,000, Fayette \$8,000,000, and Barbour \$8,000,000. An increase of value which is the direct result of the road building.

OUR BIRMINGHAM LETTER.

Railroad and Industrial Activity. Increase of Immigration to the South.

[Special correspondence MANUFACTURERS' RECORD.]

BIRMINGHAM, ALA., July 12, 1886.

One day last week the Kansas City people descended upon Birmingham with chariots and horses—that is to say, mules. Of the latter there were several hundred fine ones from Kentucky and Tennessee, every one of them groomed and shining like race horses; and the chariots, which were filled with every conceivable material familiar to railway construction, were on the march in a few hours after the arrival of the draught animals. With such a good start the week became a sort of railway period, and was thenceforth full of construction and projection reports and rumors. Mr. Nettleton's advent was closely followed by that of the Louisville & Nashville president, and a day later came General Sam Thomas, of Pennsylvania, and a lot of prominent capitalists. Perhaps the feature of the week has been the closing of a negotiation, some time pending in New York, for money necessary to build the much talked of Birmingham & Mobile Air Line. This project, understood to be in the interest of a leading trunk line, has been on the cards for several months. A preliminary survey was lately concluded, and it is expected that work will be commenced at once. On the Memphis, Birmingham & Atlantic, about 10 miles, beginning in the city, are ready for rails. Operations on the Goodwater extension from Goodwater are reported commenced. The Birmingham Mineral Railway extension is rapidly approaching completion to Jonesboro. Nothing new has transpired in regard to the Birmingham & Sheffield, nor to the Georgia Pacific extension; both are being pushed.

It appears that the enterprises and activities of Birmingham are quite independent of climate or weather; still it must be confessed that absence of the heat we hear of as afflicting the Northern and Eastern cities may have something to do with the general rush of business and speculation at this time. In every line of local effort movement is as active as it was in the liveliest time of spring. Real estate is in good request, although, as I observed last week, there is little noise being made about it. Negotiations are pending for general office building sites for two of the new railways. Plans for the large commercial office building of which I wrote last week were shown me to-day. It will be ready for occupancy by January 1. The Louisville capitalists who are about to establish stove works in Birmingham have found a satisfactory location. They promise to have the works in operation and to show 100 artisans hard at it by October 1.

There is a much stronger feeling in the iron market. Enquiry for all grades is better, both from the East and West. Prices are unchanged, but local opinion seems to agree with that of the Eastern trade, that the early autumn is to witness an advance of prices.

There is much talk again of immigration, and a very little concerted effort, backed by the necessary means, would doubtless lead to an influx of settlers in the Mississippi valley. Louisiana is getting a great many very desirable immigrants, principally from Iowa and Nebraska, who are taking up land in the Calcasieu Prairie country and making fine farms. A flourishing Northern colony of 1,500 people has been on the ground for several years, and their friends in the Northwestern grasshopper regions are flocking to reinforce them. Immigration has been never more active in Tennessee than at present, and, as in the case of Alabama, it is largely

an immigration of capital and capitalists. Kentucky still continues to reap rich rewards from the immigration policy inaugurated by Commissioner Procter, and her nine flourishing foreign colonies are increasing in wealth, production and numbers every season. Of the movements in North Carolina in the same direction the MANUFACTURERS' RECORD has given notice frequently. All the phenomena of the subject point to the conclusion that the old suspicion of and indifference to immigration has about died out in the South.

A very superficial glance at the map of the mineral region of Alabama will show that the new railways building through it, in conjunction with those already on the ground, will pretty thoroughly gridiron the district. This of course gives prospective and even present value to large areas of mineral land that a year ago were away outside of any consideration. There is a very steady enquiry for everything of the kind. Iron property has gone out of sight, and the market is as bare as can be imagined. Coal lands are more plentiful, and the demand for them is daily improving, the same being true as to prices. The quest for manganese has not turned out as well as I hoped it would. Several promising deposits have been found in this district, but, as a general thing, they have been found rather thin and poor. The chances are good that important deposits may yet be discovered. In the meantime, it might not be a bad idea for any of your readers in neighboring States who may happen to own or know of good manganese properties, to correspond with somebody here on the subject. Gold, silver, copper, tin and zinc have been found in several places, and one or two gold mines have been opened recently. One of these, a placer, up in Calhoun county, had just gotten in shape for work, when the June floods came along and cleaned it out, bag and baggage. There are unquestionably rich placers in one or two Alabama counties, and gold hunters are not uncommon. There is an aggravating suggestiveness with which the richest metal crops out in the South. One is all the time tempted to think that the next great gold excitement may develop in this direction. It might be a questionable good, too, but it is hardly worth discussion just now. We have iron, coal, timber, real estate and the tariff. With these mercies we ought to be able to get along for awhile, even if the gold mines of Alabama remain undeveloped for the next century.

G. B. WEST.

Condition of the Blast Furnaces.

In its monthly report showing the condition of the blast furnaces of the United States on July 1, the American Manufacturer gives the total number of furnaces in blast as 310, with an aggregate weekly capacity of 121,650 tons, while on January 1 there were only 273 furnaces, with weekly capacity of 97,051 tons, in blast. It is believed that the weekly production of pig iron is now greater than ever before in the history of this country, naturally causing some increase in the stocks on hand, especially as this is the season of the year in which stocks generally accumulate. Notwithstanding this increase the outlook for the iron trade is considered as quite favorable, as the consumption is heavy and promises to be still larger in the fall.

If you are not already a subscriber to the BALTIMORE MANUFACTURERS' RECORD, send us \$3 and you will receive it regularly for one year or six months for \$1.50.

Virginia's Garden Spot.

The Great Resources of South-West Virginia.

[Special correspondence MANUFACTURERS' RECORD.] WYTHEVILLE, VA., July 10, 1886.

Since my last letter I have retraced my steps somewhat, again traveling over the New River extension of the Norfolk & Western Railroad to Bluestone Junction, thence to Central, the starting point of the Pocahontas extension, where I awaited my train to proceed westward. I stopped at Pulaski City, which, like all other towns on the line of this progressive railroad, is striding ahead with swift and unwavering steps. Only a few years ago there were but two houses in the place, now it is a thriving village of some 500 inhabitants, with churches of several denominations, stores, hotels, etc., and bids fair within a very few years to become a large city. Here are located the zinc works which work up the ores of the famous Bertha Zinc Mine, situated near New River, below the mouth of Reed Island Creek, and on the line of the Cripple Creek extension of the N. & W. Railroad.

This ore which occurs chiefly as silicate and carbonate of zinc crops out frequently at the surface where it is mined, dried in kilns and then hauled to the zinc works at Pulaski. The mine has been opened to the depth of some two hundred or more feet. Twenty-five hundred tons of zinc were shipped from this mine in the year 1881, but since the railroad arrived at that point the shipments have been greatly enhanced. About two hundred yards from the railroad station at Pulaski on a gently sloping hill, amid the shades of the luxuriant sugar maples, stands the "Maple Shade Inn." It was built and is owned by the N. & W. Railroad, and is, without exception, the prettiest, most comfortable and delightful place wherein to rest and cast aside one's cares that I ever put my foot in. It is built in Queen Anne style of architecture, with all the conveniences of a first-class city hotel. Rooms exceptionally large and airy, gas made on the place, electric bells, wide porticoes, beautiful dining-room, with tables for families, fine attentive servants; in fact everything that one could wish in order to enjoy a summer amid the fresh breezes of this mountain region. The landlord is mine-host Bohrer, well-known to the many guests of his far-famed hostelry at Liberty, in Bedford county, who is the right man in the right place. The hotel is being filled up with guests from the far South, who invariably know a good thing where they see it. It is most heartily commended to our people. Bidding goodbye to Pulaski, I soon found myself at Wytheville—the county seat of Wythe—known as the "Mountain City of Southwest Virginia." It is a very pretty town of 3,000 inhabitants, situated in one of the most healthful and picturesque portions of the old commonwealth, and 2,500 feet above the level of the sea. It has all the appointments of a large city, fine water works, &c., churches, hotels, one of which, the Fourth Avenue, vies in convenience and comforts with many of Northern hotels, and is the resort of health and pleasure seeking Southerners in the summer months. The buildings in most instances are quaint and very old-fashioned, but one finds within them that old-fashioned Virginia hospitality which warms the heart and makes one feel immediately at home. There are here factories of various kinds, notably among them the large plow factory of Messrs. McWeane & Co., who do a large business, not only in plows but in other agricultural implements, throughout the South and Southwest. The carriage factory of Messrs. Foote & Johnson is another large and flourishing industry. It has the capacity for turning out 600 vehicles per year, which go into the markets of Tennessee and Western North Carolina. They are about extending their business to meet the demands from the South. The

trade of Wytheville for the most part is desired from the great mining districts to which she is so nearly allied, situated on New River, and the truly wonderful Cripple Creek region. Here are found vast belts of iron, zinc and lead, and the locality may truly be called the "grand inexhaustible treasure house of the Old Dominion." The Wythe Lead & Zinc Company's mines, at Austinville on New River, are among the most important of these great industries. They have been mined incessantly since the year 1750, and, after supplying the various markets with their output for one hundred and thirty-six years, are as inexhaustible as ever. The property is owned by the heirs of David Pierce, Thos. Jackson, and Col. Jas. White, all deceased, and has been handed down from generation to generation, and will continue to be. There are 2,600 acres in the tract in which lead, zinc and some iron are found, the zinc predominating, with sulphurets underlying the carbonates, which proves them inexhaustible.

During the "late unpleasantness," seventeen hundred tons of lead from these works alone were moulded into bullets and used by the Confederate army throughout the South.

The process of separating the ores is most interesting. Being located on the river, the works are run by water power, probably the finest in Virginia. First the ore is crushed and passed under heavy chilled iron rollers, which renders it as fine as sand. It then passes through a series of washings by patent "jigs," which separate the metals, the lead being the heavier falling first into a trough, in perfectly pure state, ready for melting and moulding into pigs of 62 lbs.; then into another trough drops the zinc, also in its purity, ready for the furnace, while the rock grindings, being the least weighty of all, are carried off into the sluice and are deposited in the river. The finest washings of lead are wasted before placing them in the furnace in order to have them adhere, thus preventing their being blown away in the blast. I saw some 3,000 tons of pure zinc ore in huge piles awaiting the building of the railroad to that point, which will undoubtedly be done in a very short time, as an immense business awaits its arrival. The company proposes to build speltic works just as soon as railroad transportation can be gotten for their product, and it is to be hoped that the N. & W. R. R. will not have them wait very long, particularly as so much money has been expended in grading and tunnelling. All along the line of the Cripple Creek extension, whose proposed terminus is Speedwell Furnace, there are large iron interests awaiting most anxiously the scream of the freight locomotive dragging in its train the much needed cars to bring their products to the main line for shipment. That the N. & W. R. R. is fully alive to the importance of a speedy completion of this extension is not to be doubted. The Wythe Lead & Zinc Company's works have machinery of 100 horse-power propelled by 3 of Jas. Leffel's 52-inch and one 30½ turbine wheels. They manufacture a very superior quality of various sized shot at their mines by means of a shot shaft two hundred and thirty feet in depth to the underground tunnel. The deposit has been pierced by shafts and tunnels for more than fifteen thousand feet, and the bottom of it has not yet been reached, as the mine has been worked so as to be self-draining. The iron furnaces on New River are the Cedar Run Furnace, owned by Major D. P. Graham; the Foster's Falls Iron Co. Furnace and the Reed Island furnace, both owned by Messrs. Graham, Robinson & Co.; the Barren Spring Furnace, owned by Messrs. Manning & Squires, of New York; the Radford Furnace, owned by Richard Wood, Esq., of Philadelphia; the Ivanhoe Furnace, owned by Messrs. Hendrix Bros., of New York, and the Walton Furnace, owned by the Lobdell Car Wheel Company, of Wilmington, Del. On Cripple Creek the last named company owns

the Brown Hill and the White Rock Furnaces, the Messrs. Crockett & Co., of this section, own the Eagle, Wythe, Raven's, Cliff and Beverly Furnaces. The Norma Iron, or Irondale, Furnace is owned by Messrs. I. F. Slaughter, G. R. Dunn, J. G. Green and J. A. Walker, composing the firm of Slaughter, Dunn & Co. The Cave Spring Furnace is owned by Col. Robt. Sawyer. Time and space will not permit a precise description of all these furnaces. They produce from 6 to 10 tons per day of first-class pig iron; some of them the brown hematite ore, from which car wheels are made. All of these industries are prospering, the low price of iron during the past year to the contrary notwithstanding. They are among the most important factors for the development of the resources of this great old State.

On the N. & W. R. R., about 3 miles from Wytheville, there is a United States Fish House, where trout, salmon and other game fish are hatched out, which are used for stocking the various streams and water courses in this region. The city water works are forty years old, but the growth of the city has been such as to render necessary an enlarged system, which will very soon be effected.

As will be seen in my list of furnaces in this region, a very considerable amount of Northern capital has been invested in them. If any region anywhere can be found which offers more inducements to capitalists to safely invest their means than Southwest Virginia, it would be a very difficult thing to prove it, at least to my satisfaction. It only requires small outlays in very many instances to produce large results, and if the open-handed, progressive men of the Northern section could be induced to come and see for themselves, they would be amazed to think that they have lived so long in anything but "blissful" ignorance of many opportunities for realizing handsome fortunes in this great industrial and garden spot, known as Southwest Virginia. W. M. P.

Notes From Along the Western North Carolina Railroad.

[Special correspondence MANUFACTURERS' RECORD.]

GLEN ALPINE SPRINGS,
BURKE COUNTY, N. C., July 9, 1886.

Descending from Asheville to the Piedmont section of this State one is lost in wonder at the boldness of conception and the engineering skill displayed in building a railroad into these mountains. To most people such a work would have seemed a physical impossibility. Conversing with Major Wilson, of Morganton, who planned and executed this extraordinary feat, I know not which most to admire, his ability or his modesty. In the face of immense natural obstacles, that would have deterred most men, he persevered until he accomplished the undertaking. There was also a time when financial troubles interfered with his work, but he was equal to the occasion, and used his private resources for the prosecution of the enterprise, having faith in the future and believing that eventually he would be fully repaid. Major Wilson is a short, spare man of about fifty. He began work upon the Western North Carolina road at Goldsboro when a mere boy, and except during the war he has always been connected with it. No one would judge while looking into his mild blue eyes, or at his delicate physique, that this man could have conceived and executed the peculiar undertaking of spanning the Blue Ridge with a railroad that would eventually become one of the great through-lines of the South, but he did it, and what is more, he is now the supervising engineer of the road that will soon be completed to Murphy and open up the treasures of all this mountain country. Many men of eminence have been born in North Carolina, but not many of them have done as much for the State and nation as has this modest engineer by his magnificent railroad work.

There are two places on the line between Asheville and the base of the mountain worthy of mention: The first is Black Mountain Station, at which the Mount Mitchell Hotel is located. The North Carolina Chataqua was in session there for two weeks, some 500 teachers and advanced pupils being in attendance. It is questionable whether the State ever before had a gathering equal to this in intelligence, youth and beauty. The hotel accommodations were equal to the occasion, and a more delightful company was never congregated. They made excursions to Mount Mitchell, to the Nantahala river, and to many other points of interest, and carried out to the full the aspiration of that ancient song—

"In books, and work, and healthful play
Let all my hours be passed,
That I may give for every day
A good account at last."

That station is nearer than any other to Mount Mitchell. Horses, guides and outfits are kept for tourists, and everything is done to make a season there as pleasant as possible.

Another place, called Round Knob, has a hotel for the benefit of tourists and mountain visitors. This is unique. A four-story building stands on solid rock on the edge of a deep chasm. Below is a small but beautiful circular valley, in the center of which is a tall iron pipe, from which a solid column of water is projected more than two hundred feet, falling in showers of spray that, when the sun shines, is an ever-changing sheet of prismatic colors. This is a delightful place for weary minds and bodies. Except when the trains are passing, it is the quietest spot imaginable. The music of wind harps in the forest, the chirping of insects and the drip of the fountain are the only sounds to break the otherwise profound silence. If any reader should ask—

"Oh where can rest be found,
Rest for the weary soul?"

Every one who has been there will reply: "At Round Knob."

At the foot of the mountain is Old Fort, in McDowell county, an old settlement, beautifully located, but with nothing to make it much of a place now or in the future. Just a snug hamlet, nothing more. Marion county comes next. At the station it seems to be only a stopping place, but the town proper lies beyond, and, although not a large place, it does a thriving mercantile business, for its traders furnish many country stores in the mountain counties north and east to the Virginia line with goods, and receive much of the produce of those counties in exchange. Soon the line is passed and Burke county entered, where railroad stations are almost as near together as pearls on a necklace. All this region from Old Fort on is naturally a fine farming country, and if ever thickly peopled by agriculturists who understand the business, it will be one of the garden spots of the Old North State. At present there is too much slipshod farming, too many tenants scratching the surface and content with meager returns. There are also large tracts of land lying idle that would yield liberally to intelligent husbandry. A fruit country without superior, a splendid place for sheep and neat cattle, a great country for rearing horses and mules; this ought to be, from the base of the mountains onwards, the finest section of North Carolina for every variety of agriculture and horticulture and their allied industries. But not for these alone, for the heavy forests are full of valuable trees, while precious metals abound, and can be mined more cheaply than in most of the other gold-bearing districts of this State.

Some Northern men, who for five years have been owners of gold properties not far from this place, have recently contracted for land on both sides of the railroad at a place called Leonard's Cut, about half way between Bridgewater and Glen Alpine Stations, and intend to build a town there which shall be the nucleus of a manufacturing and farming community. The land lies beautifully for a

town site, and is nearer to the gold-bearing part of Burke county than any other on the railroad. They expect to commence operations late in the summer, and in the autumn to bring out a considerable colony of New Englanders. The men interested in this enterprise have plenty of capital, and what is better, they have great faith in the future of this part of the State, and expect that it will have a rapid development.

Glen Alpine Springs have long been famed for the medicinal efficacy of their waters. Ever since white settlers came here they have been resorted to for the cure of blood and kidney diseases, and, according to tradition, the Indians knew them and used them for centuries. A few years ago Col. T. G. Walton, a native North Carolinian, bought the land containing these five fountains and built a hotel in their midst. Although intended for a sanitarium, it has become a popular summer resort for pleasure-seekers, and from the middle of July to the first of October it is crowded with guests. The house is built after the Gothic style, the hard woods of the region being used for its adornment. There is a rugged simplicity about everything except the table that well befits the location. Over the broad doorway ought to be inscribed this motto: "All who come here must leave fashion at home." It's no place for frequent changes of attire or for the putting on of style. There are rugged mountain paths to climb, fields and forests to be traversed by sportsmen, plenty of opportunities for botanists,—everything to suggest simplicity of clothing and manners. But when it comes to eating, I pity mine host. These spring waters and this air incite fearful appetites. Fortunately the landlord enjoys providing liberally, otherwise his guests would suffer.

Within two miles of the springs are the Hancock and the Carolina Queen mines, both owned by New Englanders. The first is a placer mine of 300 acres; the other (of 1,200 acres) is both a placer and a vein mine. Both give large yields of gold to their owners, and when projected improvements are made, it is expected that increased dividends will result. Not far distant is the famous Brindletown district, from which, before the California excitement of '49, more than \$2,000,000 worth of bullion had been extracted. Several mining operations are successfully prosecuted in that district even now, and experts say there is more gold there within reach of modern methods than was ever taken out in the past.

The pure waters and the great abundance of sumac and chestnut oak make this country a splendid one for tanneries. It is probable that one will be started at the new town on the railroad as one of the first of its manufacturing industries. Another that will follow the introduction of sheep will be a woolen mill. A woodenware factory is also thought of. I mention these because they are included in the plans of the projectors of the new town, and because they are perfectly feasible, and may be undertaken not only there, but in a dozen other places on the line of the railroad near and remote from the site of the proposed enterprise. If any wish to know more definitely about the town that is to be, they can address Capt. John F. Boyd, No. 1 Broadway, New York, who is the manager for himself and his associates. B. S. P.

Building in Jacksonville.

[Special correspondence MANUFACTURERS' RECORD.]

JACKSONVILLE, FLA., July 8, 1886.

We have just completed plans for a fine hotel to be built at Pablo Beach by Col. N. T. Forbes; hotel to be 3 stories high, broad piazzas, spacious parlors, and all the modern improvements. We are now making plans for Messrs. Mumby, Stockton & Knight for a 3-story brick building, 52 x 66 x 107, pressed brick, stone trimmings, and have just completed plans for Geo. McConike, 5 stories, 105 x 52 1-6, stone front; and a country villa for Mr. Hildreth, of Orange City, Fla. Building has never been so brisk as at present. Jacksonville is growing like magic, and to-day offers one of the best points in the country for investors or to those who have money to loan on real estate.

A. E. McCLURE.

CONSTRUCTION DEPARTMENT.

WE PUBLISH, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

ALABAMA.

It is rumored that the Louisville Stove Co., Louisville, Ky., will start branch works at Birmingham, Ala.

The Montgomery Soap Works, Montgomery, Ala., are being enlarged.

The Union Warehouse & Elevator Co., Montgomery, Ala., have contracted for a cotton compress, which they will soon erect.

The Morris Mining Co., of Birmingham, Ala., are putting in new machinery at their mines at Redding and Hillman.

W. M. & C. C. Beatty, Jonesboro, Ala., have purchased machinery for a saw mill.

J. W. McMillan will build a large warehouse, 75x150 feet, at Talladega, Ala.

The contract to erect the building at Selma, Ala., for the Young Men's Christian Association, previously reported, has been let to W. D. Breckenridge, of Birmingham, at \$15,300.

The Western Valley Street Railway Co., capital stock \$50,000, has been incorporated at Birmingham, Ala.

George P. Harrison, Jr., E. A. Flewellen, W. G. Raoul, W. S. Clark and others have incorporated in Alabama the Goodwater & Birmingham Railway Co., capital stock \$1,000,000, to extend the Columbus & Western Railroad from Goodwater to Birmingham.

Pringle & Herrington will erect a new lumber mill at Pollard, Ala.

N. Harper and J. G. Egg are building a lumber mill near Brewton, Ala.

D. M. Yeomans is purchasing large mineral property near Fayette C. H., Ala., and is investigating the coal with a view to mining. McGuire & Collier, Fayette C. H., can give particulars.

The Central Iron Works, Helena, Ala., have shut down to make changes in their machinery to manufacture nails from steel instead of iron.

It is stated the Memphis & Charleston Railroad will extend their road from Stevenson, Ala., to Chattanooga, Tenn.

Miller & Smith are building an addition to their planing mill at Anniston, Ala.

ARKANSAS.

The Eureka Springs Gas Light Co., of Eureka Springs, Ark., reported last week as incorporated, have purchased the gas works built two months ago by the Inter-State Gas Co., of St. Louis.

A company is being organized to develop the coal fields of Ouachita county, Ark.

Ostrander & Co. are developing mining property near Crystal Springs, Ark.

A \$50,000 hotel is reported to be erected at Texarkana, Ark.

Cox & Denton, Gassville, Ark., will erect another large gin.

R. F. Randolph has purchased a site at Knobles, Ark., and will erect a saw and shingle mill.

Berry & Bennett, Crystal Springs, Ark., want mining machinery.

The Excelsior Soapstone Works, of Little Rock, Ark., propose to manufacture china-ware, bricks, tiles, soapstone slabs, &c.

FLORIDA.

The Sanford Light & Fuel Co., capital stock \$40,000, has been incorporated at Sanford, Fla., with Thomas G. Eaton as president; E. L. Stillman, vice-president; Alfred A. Richards, secretary and G. O. Hallowell, treasurer. The company have purchased a site for and will erect the gas works previously reported to be built by Thomas G. Eaton.

Brown, Heidt & Co. have started a brick yard at Camp Izard, Fla.

It is reported that a company is being organized at De Land, Fla., with \$50,000 capital, to establish agricultural works.

GEORGIA.

The Conyers Oil & Fertilizer Co., Conyers, Ga., reported last year as organized with W. L. Peek as president, have commenced work on their mill.

The name of the company previously reported as formed at Tate, Ga., by J. A. Dewar and others, to develop marble quarries, is the Blue Ridge Marble Co. The capital stock is \$60,000.

C. C. Buchanan and R. H. Murphy are erecting a saw and planing mill at Waycross, Ga.

Fleming & Chappel, Liberty Hill, Ga., will rebuild their saw mill and gin reported last week as burned.

J. W. Cline and W. A. Smith are erecting a steam gin at Mountain Hill, Ga.

The Rome Ice Manufacturing & Trading Co., capital stock \$20,000, has been incorporated at Rome, Ga., with Hamilton Yancey as president, and F. W. Dixon, general manager. The company will operate the ice factory previously reported as erected by Rushton & Dixon.

KENTUCKY.

Mason, Hoge & Valz, Quincy, Ky., previously reported as intending to work several stone quarries, will want quarrying machinery.

The Hartsfeld Portable Smelting & Mining Co., Newport, Ky., contemplate erecting a 60-ton furnace to cost \$75,000. It is stated that the contracts for all the machinery have been let.

A company has been formed, it is stated, to develop mineral property in Rockcastle county, Ky., 25 miles from Richmond, with W. M. Irvine, as president; J. M. Poyntz, vice-president; S. S. Parkes, treasurer; W. K. Denny, secretary and superintendent.

LOUISIANA.

Samuel R. Bullock & Co., of New York, have received the contract to build water works and construct a sewerage system at Shreveport, La.

The Edison Electric Light Co. will erect a plant at the custom house, New Orleans, La., of 1,200 lights capacity.

A stock company has been organized at New Orleans, La., to establish a coffin factory.

It is reported that the machinery has been purchased to start a glucose factory opposite New Orleans, La.

MARYLAND.

The Monumental Seal Lock Co., capital stock \$100,000, has been incorporated at Baltimore to manufacture locks, with Nicholas G. Penniman, John A. McGarry, Robert A. Dobbin, W. F. Beasley and William Gilmor, as directors.

The Co-operative Druggists' Glassware Manufacturers' Association are altering and improving their factory at Hullsville, near Mt. Winans, Md.

Jacob E. Bull has received the contract to build the Masonic Hall at Belair, Md., previously reported, at \$13,907.14.

MISSISSIPPI.

George W. Robinson, Pensacola, Fla., has purchased and will repair the De Smet saw mills, at Moss Point, Miss.

The Greenville Cotton Seed Oil Co., previously reported as organizing to build a cotton seed oil mill in Greenville, Miss., has been incorporated as the Greenville Oil Works, capital stock \$200,000, to make cotton seed oil, soap, &c.

NORTH CAROLINA.

The Blackwell Durham Tobacco Co., Durham, N. C., are adding some new machinery.

The Big Swamp Co., previously reported as likely to build a saw mill at Fair Bluff, N. C., will not build this year. When they do put up a mill it will probably be at Yorkville, N. C. Mr. George Smith, of Wilkesbarre, Pa., is interested in this company.

Humphries & Co. have recently started a tobacco factory at Shelby, N. C.

A tobacco factory has been started at Shelby, N. C., by Mr. Leak.

The establishment of a furniture factory with a capital of \$20,000 is being worked up at Salisbury, N. C.

Gaskill & Holmes, Salisbury, N. C., will erect a new four-story brick tobacco factory, 50x130 feet.

J. L. Lockhart will erect a four-story factory, 40x110 feet, at Durham, N. C., for the rehandling of tobacco.

It is reported that Bailly Pool will erect a saw mill near Lewisville, N. C.

J. B. Rhyne will rebuild his distillery near Salisbury, N. C., lately burned.

Contracts for the pipe and stand pipe for the water works lately reported to be built at Asheville, N. C., by the city, have been awarded.

A large warehouse, 50x150 feet, will be erected at Raleigh, N. C., by the Raleigh Oil Mill & Fertilizer Co.

The Beaver Creek & Bluff Mills Manufacturing Co., Fayetteville, N. C., are putting some new machinery in their cotton mill.

The tobacco factory of Johnson & Ramsay, Salisbury, N. C., will be enlarged next year.

SOUTH CAROLINA.

C. C. Habenicht, Columbia, S. C., will rebuild his ice factory, reported in this issue as burned.

A rice mill is being erected at Charleston, S. C., by Sheppard & Porcher. The machinery has been purchased.

There is some talk of converting Chisolm's Rice Mill at Charleston, S. C., leased by Charles S. Bennett & Co. and the West Point Mills Co., into a flour mill.

The building of water works at Spartanburg, S. C., is being considered by the city council.

TENNESSEE.

The Walton & Nashville Co-operative Coal & Manufacturing Co., Nashville, Tenn., reported last week as incorporated, have started and will operate a knitting factory.

The Pennsylvania Lumber Co., are erecting a saw mill and a factory at White Rock, Tenn.

James O'Connor, T. J. Reid, N. S. Woodward, T. A. Burrier and R. N. Hood have formed a company at Knoxville, Tenn., to build a street railroad.

The Columbia Water Co., Columbia, Tenn., will enlarge their plant by building a new reservoir and a new pump house and putting in additional machinery.

It is stated that the Blount Stave Co., of Chicago, Ill., will erect a barrel factory at Oliver Springs, Tenn.

The Republic Marble Co., lately reported as organized at Knoxville, Tenn., by George Andrew, W. S. Mead and others, have leased marble lands in Knox county which they will develop.

The Charter Mills, Wartrace, Tenn., have been overhauled and some new machinery has been put in.

Preparations are being made to erect a peanut factory at Centerville, Tenn., at a cost of about \$7,000.

The cotton batting factory recently reported as being started at Sweetwater, Tenn., by Gillette & Lenoir, will be known as the Sweetwater Batting Co.

TEXAS.

Thomas Johnson has received the contract to build a warehouse, 120x150 feet, at Hollingsworth, Texas, for J. A. Beaty.

The machinery is being received for the rope and twine factory at Jefferson, Texas, previously reported to be started by F. Priest, of Decatur, Ill. It will be known as the Jefferson Cotton Factory.

The Brenham Oil Mill, Brenham, Texas, is to be enlarged and improved.

Frank Perry, of S. B. Steers & Co., New Orleans, La., is in Gainesville, Texas, prospecting with a view of erecting a cotton compress.

The lumber mill of the Nona Mills Co., Carroll, Texas, has been overhauled and new machinery is being added, increasing its capacity.

The Pennsylvania Bridge Co. have received the contract for the iron work for a bridge at San Angelo, Texas, at \$8,300.

VIRGINIA.

The iron furnace of D. S. Cook, Carolina, Va., has been blown out to make repairs.

R. H. Coleman is preparing to start a foundry and machine shop at Lexington, Va.

It is reported that three new mines will be opened in the Flat Top coal lands. The Flat Top Coal Co., Pocahontas, Va., can probably give particulars.

John Hancock contemplates erecting a steam saw and grist mill at Amsterdam, Va.

Henry Lengle will start a cigar factory at Claremont, Va.

A large creamery is to be started at Warrenton, Va.

John Cooper & Co., Pocahontas, Va., are preparing to open another mine in the Flat Top coal lands and will erect 100 coke ovens.

WEST VIRGINIA.

The Central Glass Co., Wheeling, W. Va., are refitting their furnaces and making other alterations in their works for the purpose of using natural gas in place of coal.

A stock company has been formed to start a creamery at Lewisburg, W. Va. James A. Lutz can give information.

A brick yard is being started at Mohler's, W. Va., by N. B. Shepherd.

The Hanna & Nye Manufacturing Co. has been incorporated at Charleston, W. Va., by W. S. Hanna, R. Hanna, A. T. Nye, Jr., and others, to manufacture and deal in tin and galvanized iron work. The capital stock is \$6,400, with the privilege of increasing to \$50,000.

LOCKWOOD, GREENE & CO. MILL ENGINEERS

Office, 65 Westminster St., Providence, R. I.,

Carefully prepared plans, specifications and estimates furnished for the construction, equipment and organization of new mills and the revision and improvement of old.

BURNED.

Minnick's saw mill, near Bristol, Tenn., destroyed by a flood.

The mills of Rush Bros., Mr. Horne and Mr. Bemby, in Pulaski county, Ga., are reported as wrecked by a flood.

The ice factory of C. C. Habenicht, Columbia, S. C.; loss \$8,000. Will be rebuilt.

P. P. McLean's flour mill near Franklin, N. C.

To Bore for Water, Oil and Sulphur.

LAKE CHARLES, LA., July 10, 1886.

Editor Manufacturers' Record:

We have formed the Calcasieu Artesian Well Co., with stock from \$5,000 to \$20,000. We have our machinery ordered, and expect to receive the whole apparatus in a few weeks. Our object is to bore wells for water, also for oil and sulphur,—as this country is very promising, having one mine now in operation some 15 miles from this place which produces sulphur and oil in abundance. Wm. H. Haskell, Sr., is president and A. C. Gordon, treasurer.

W. A. KNAPP, Secretary.

Water Works Wanted.

CHATHAM, W. VA., July 10, 1886.

Editor Manufacturers' Record:

We would like to get some capitalist to build water works for our town. The water can be procured from a spring 1½ miles from town. The spring is 40 feet higher than the highest point in town. It will cost about \$5,000 to construct the works, and the rents will pay a dividend of 20 per cent. on the cost. Our town has a population of 1,000.

W. I. OVERBEY.

Quarrying Machinery Wanted.

QUINCY, KY., July 12, 1886.

Editor Manufacturers' Record:

We intend opening and operating quarries here and at Vanceburg, Ky., on a large scale. We shall want to buy steam hoisters and other quarry supplies.

MASON, HOGE & VALZ.

NEW ORLEANS, LA., July 10, 1886.

Editor Manufacturers' Record:

I propose to erect at Key West a Luft Fibre Machine as soon as I have received for trial the 1,000 pounds of pineapple leaves and New Zealand flax lily ordered through the custom house collector there. Will soon decorticate ramie. We will organize a large company here in a few days.

Y. T. P. LANGHAMMER,
298 Baronne street.

Building Tobacco Factory.

DURHAM, N.C., July 10, 1886.

Editor Manufacturers' Record:

I will not again engage in the manufacture of tobacco bags. I am building a large factory for the handling of leaf tobacco.

JOHN S. LOCKHART.

BIRMINGHAM, ALA., July 8, 1886.

Editor Manufacturers' Record:

We have sold a 50-horse-power engine, boiler and saw mill to W. M. & C. C. Beatty, Jonesboro, Ala.

SHAW & DAVIN.

Improving Flour Mill.

LOUISVILLE, TENN., July 10, 1886.

Editor Manufacturers' Record:

We are overhauling our works, changing from buhrs to rolls; capacity 40 barrels per day. We are putting in the Gilbert Universal Rolls, manufactured by Stout, Mills & Temple, Dayton, O. Will be ready for operation the first of next month.

WEAVER, MITCHELL & CO.

To Build Water Works.

NEW YORK, July 13, 1886.

Editor Manufacturers' Record:

We have the contract to build the water works and construct a system of sewerage for Shreveport, La.

SAM'L R. BULLOCK & CO.

Rebuilding Mill.

OCEANA, W. VA., July 8, 1886.

Editor Manufacturers' Record:

I am rebuilding my mill, and have bought the machinery of S. Morgan Smith, of York, Pa.

W. B. MCCLURE.

BLOCTON, ALA., July 5, 1886.

Editor Manufacturers' Record:

The Cahaba Coal Mining Co. have their machinery already in place and will commence sinking Slope No. 3 next Monday. The new opening will cost \$60,000. Nearly two miles of very expensive railroad must be built and another new locomotive purchased. We expect to ship coal from the new mine November 1st.

N. B. STARK.

PORT GIBSON, MISS., July 5, 1886.

Editor Manufacturers' Record:

The Port Gibson Cotton Mills has purchased all necessary machinery except slasher and warpers, and expect same to be delivered within the next four weeks. Mill 186'6" x 52', with engine, boiler and picker rooms. Capacity 112-36' inch looms.

E. S. DRAKE, President.

Proposed Car and Steel Works.

NEW YORK, July 8, 1886.

Editor Manufacturers' Record:

In regard to the proposed car works at Portsmouth, Va., I will say that if the people of that town will subscribe \$100,000 worth of the stock of a new car company that is proposed to be organized with a capital of \$600,000, to established works in some part of Virginia; they will be located in Portsmouth. The other \$500,000 will be furnished by other parties. In regards to the Breen steel plant in Southwest Virginia, mentioned in the MANUFACTURERS' RECORD last year, I will say that as soon as I can get railroad transportation satisfactorily arranged, the steel plant will be put up, but we must first have railroad communication, which is now in a fair way of being arranged to my satisfaction.

THOMAS BREEN,
of Knowlton, Pa.

A Castor Oil Mill.

WEATHERFORD, TEX., July 6, 1886.

Editor Manufacturers' Record:

We have the walls of a stone building, 54x107 feet, completed, and are now putting on a second story of wood for our cleaning machinery and storage, and will have one of the best-equipped mills in the South when completed, which will be about September 15.

R. W. KINDELL, Prest.

Building Flour Mill.

FAIRMOUNT, W. VA., July 8, 1886.

Editor Manufacturers' Record:

I am building a mill of 50 barrel capacity of full roller system; will be completed by August 1st. Messrs. Wolf & Hamaker, of Chambersburg, Pa., are the contractors. Mill is to have six stands of the Edw. P. Allis rolls, with other improved machinery.

G. G. FARRANCE.

CAMDEN, ALA., July 5, 1886.

Editor Manufacturers' Record:

I have recently purchased the Camden Factory, property, &c., and intend to improve and add other machinery. Have not fully determined what additions to make.

S. D. BLOCK.

To Build Coke Ovens.

FAIRMOUNT, W. VA., July 7, 1886.

Editor Manufacturers' Record:

The New England Co. are going to build 50 coke ovens of the largest size—double block ovens. A. Ross, Esq., of Baltimore, is president of the company.

R. D. WILSON, Supt.

Enlarging Furniture Factory.

MORGANTON, N. C., July 8, 1886.

Editor Manufacturers' Record:

We have added to our buildings and bought our new machinery from the Egan Co.

WILSON & REID.

\$80,000 Enlargement.

NEW ORLEANS, LA., July 5, 1886.

Editor Manufacturers' Record:

We will enlarge our brewery at a cost of \$80,000.

SOUTHERN BREWING CO.

RICHMOND, VA., July 7, 1886.

Editor Manufacturers' Record:

I propose enlarging my carriage factory to meet the demand for my goods.

W. C. SMITH.

LOUISVILLE, KY., July 8, 1886.

Editor Manufacturers' Record:

The Excelsior Trunk Top Co. is for the purpose of manufacturing trunk tops from veneer, and other trunk material. This top is patented, and the making of it is separate and apart from the manufacturing of trunks.

J. L. CHILTEN.

DENTON, KY., July 5, 1886.

Editor Manufacturers' Record:

I expect, in the near future, to move my spoke works, but don't know to what place I shall go.

J. D. WILLIAMS.

NASHVILLE, TENN., July 6, 1886.

Editor Manufacturers' Record:

We will make pharmaceutical goods, proprietary medicine and grocery drugs in connection with the jobbing drug business, increasing the manufacturing as the demands of the trade justify it.

PENDLETON DRUG CO.

Five Saw Mills.

PINE BLUFF, ARK., July 7, 1886.

Editor Manufacturers' Record:

Our company is incorporated; capital stock \$20,000; \$19,000 paid up. We have one mill in Pine Bluff on river bank, three mills on line of L. M. R. & Texas Railway, ("Valley Route,") 3, 6 and 9 miles west, and one mill on line of F. & St. L. Railway, 5 miles south. We anticipate a large business.

L. W. BRYAN, Sec'y and Treas.

Will Rebuild Saw Mill.

LIBERTY HILL, GA., July 8, 1886.

Editor Manufacturers' Record:

We will rebuild our saw mill and gin; don't know yet whether we will rebuild grist mill and shops or not. Will make the ginny about 15 bales capacity per day, and saw mill about 6,000 feet per day. James Duke, near this place, is putting up a ginny of about 10 bales capacity.

FLEMMING & CHAPPEL.

A Cotton Batting Co.

SWEETWATER, TENN., July 10, 1886.

Editor Manufacturers' Record:

W. H. Gillette and W. B. Lenoir have purchased the machinery for a cotton batting factory to be run by steam and to be known as the Sweetwater Batting Co. Mr. Gillette, who is a practical mechanic, will have charge of the business. They expect to have the machinery in operation by Aug. 1st.

G.

A Cotton Mill Rent Free.

UNION MILLS, FLUVANNA CO., VA., July 9, '86.

Editor Manufacturers' Record:

We are putting in a Smith's Success Turbine Wheel to take the place of an over-shot; also putting in entire new bolting works, broom duster purifier, etc. Daily capacity 50 barrels flour. Are also putting extensive improvements on our dam. A brick cotton factory, heated by steam, brick picker house, water-power, and ten tenement houses, situated at this place, can be had, rent free, by any party putting in works employing fifty or more hands. I have no doubt some party North is looking for just such a place. Boats can come to within 60 feet of the door to load and discharge cargo. Help is abundant and cheap and climate unsurpassed.

W. J. McDONALD.

Bricks, Chinaware and Soapstone.

LITTLE ROCK, ARK., July 8, 1886.

Editor Manufacturers' Record:

The Excelsior Soapstone Manufacturing Company propose to erect works in the city of Little Rock, for the manufacture of porcelain, iron stone china and other wares. They have every material entering into the manufacture of these wares except feldspar. They propose also to manufacture pressed, ornamental, enameled, fire and paving bricks and floor tiles; soapstone slabs, soapstone dust and the different articles into which soapstone is used; also school slates. The day may not be far distant when Little Rock, with its surrounding advantages, may become the Staffordshire of the United States. Our quarries are situated on the surveyed line of the Little Rock & Hot Springs Railway, eighteen miles from Little Rock. This is the largest body of pure steatite or soapstone known to exist.

ELIAS J. PAYN.

New Machinery.

BIRMINGHAM, ALA., July 9, 1886.

Editor Manufacturers' Record:

We are putting in (both at Redding and Hillman mines) 2 sets hoisting engines, 12x 20 feet, and drums and boilers for 2 sets hoisting machinery complete.

MORRIS MINING CO.

Will Repair and Operate Saw Mills.

PENSACOLA, FLA., July 10, 1886.

Editor Manufacturers' Record:

I have purchased the mills at Moss Point, Miss., owned by the late Mr. DeSmet. Will put them in repair and will operate them at an early day.

GEO. W. ROBINSON.

The Calera Furnace.

CALERA, ALA., July 12, 1886.

Editor Manufacturers' Record:

We are just beginning the work of putting up 48 charcoal ovens, which will be followed in time by a 50-ton furnace. Mr. J. Wilcox is superintendent of the work.

CALERA FURNACE & CHARCOAL CO.

Looking For Cannel Coal.

FAYETTE C. H., ALA., June 9, 1886.

Editor Manufacturers' Record:

Mr. D. W. Yoemans is now purchasing mineral lands (many thousand acres) about 5½ miles northeast of this place, which he thinks contain in inexhaustible quantities the finest cannel coal in America. He has men now employed to investigate the stratum, and if his expectations are confirmed, he will then immediately actively engage in mining, and will build a branch road from the mines to connect with the Georgia Pacific road at this point. Mr. Yoemans has plenty of money at his command and means business.

MC GUIRE & COLLIER.

The Victor Caloric Engine.

The mechanical construction of the Victor Hot Air Engine is shown in the accompanying sectional view.

The heater is a heavy cast iron dome.

The upper portion is surrounded by a water jacket and constitutes the cooling or condensing chamber. The lower part is surrounded on the outside by asbestos cement, and has an interior lining of asbestos, which retains the heat, is as durable as iron, and (unlike metal) cannot be affected by the heat.

feature in a small lever by which it can be quickly stopped or started. The engine is essentially a motor and can be used for power by simply attaching a pulley on the crank-shaft. For pumping purposes the pulley is taken off and a pump is attached to the side. Different forms of pump are used, according to the kind of work desired. It is said that this engine develops an astonishing amount of power in proportion to its size.

It will run steadily night and day without any other attention than oiling. Any one



VICTOR CALORIC ENGINE.

There are but two working parts in the piston chamber—the main piston, and the exchange or regenerating piston, which works below the main piston. Both are simply and strongly made, very durable, and, if broken, can be quickly and cheaply replaced. The main piston is packed with metallic rings, so that there are no leather packings to burn out. No harm can be done if the fire is allowed to burn while the pump is not running.

The two cranks of the shaft are set at an angle of 90 degrees apart, and connecting rods lead to the upper and lower pistons. The flame strikes directly upon the top of the under side of the heater, and all gases or the products of combustion are consumed or pass off through a small chimney. As the lower piston comes down over the top of the heater the air is quickly compressed upon a red hot surface, and is as quickly expanded by the intense heat, and drives the lower piston upward with great force. The force is imparted to each piston in succession, and the pistons alternately approach and recede from each other, and the air is used over and over again.

The company hold the exclusive right to the combination of the double crank and the two pistons, and also for the use of the interior lining of asbestos or other similar material. Either gas or kerosene oil can be used as fuel. In using gas a Bunsen burner is used, as shown in the cut, so that perfect combustion and great heat is obtained from a single small gas tip. The engine runs at high speed, the crank-shaft making regularly 250 revolutions per minute, and a governor is attached. The engine has also a novel

can run it who can oil the bearings and light the gas or kerosene. No engineer or skilled attendant is required. Any ordinary mechanic can set it up, and the pump is ready to start in four to eight minutes after the lighting of the fire.

The selling agent for the Victor Engine is Mr. John Q. Maynard, 12 Cortlandt street, New York.

THE manner in which the South is beginning to manufacture its own machinery is illustrated in the receipt of two orders: by one Chattanooga firm, Alfred Webb & Co., who have just received the contract for 12 boilers and considerable other supplies for the Bessemer steel plant to be established at that city by the Roane Iron Co., and an order from the new water works company of Asheville, N. C., for a stand pipe 40 feet in diameter and 60 feet high, while the Chattanooga Foundry and Pipe Works received the order for the pipe for these water works, the price being reported at about \$25,000.

A PARTNER with \$5,000 is wanted in a business said to be paying 50 to 75 per cent. profits. Additional capital is needed to extend the business. Particulars will be found in our Business Chances.

The Railroads of the World.

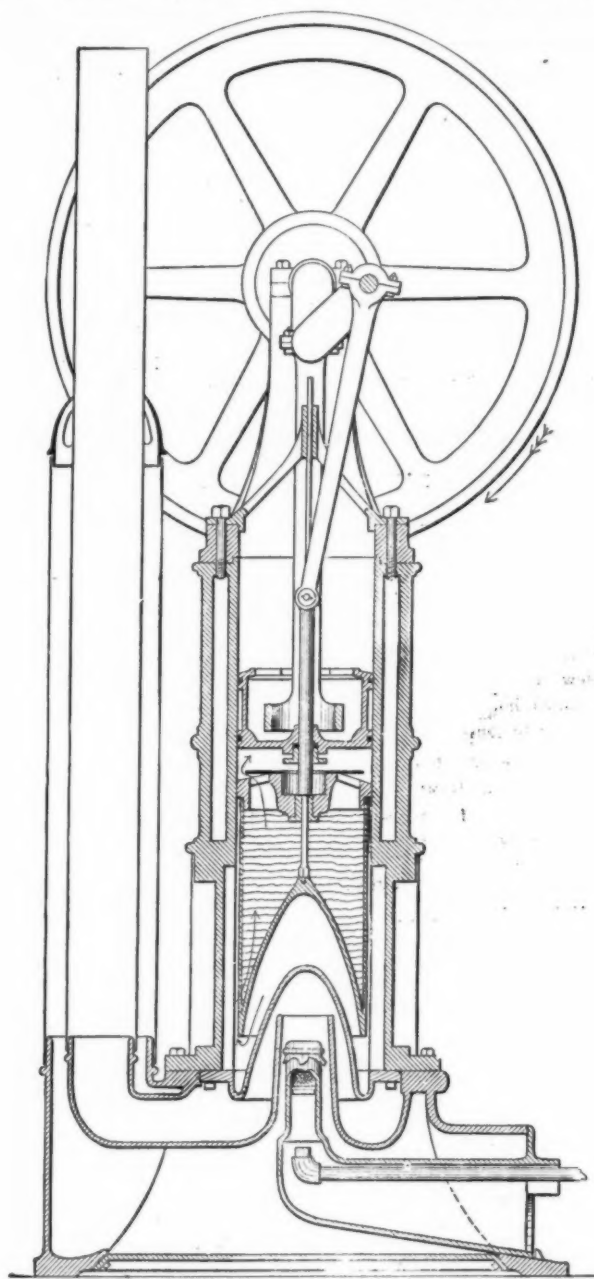
The Archiv fur Eisenbahnywesen gives statistics of the railroads of the world, prepared for the most part from official sources, making the aggregate length at the end of 1884, 290,750 miles, of which no less than 62,788 miles have been opened since 1879. Of this there were in the several grand divisions of the world:

	1884.	1880.	Increase.	P. c.
Europe.....	117,694	104,606	13,088	12.5
Asia.....	12,757	9,905	2,852	28.8
Africa.....	4,075	2,842	1,233	43.4
America.....	148,738	105,766	42,972	40.6
Australia....	7,486	4,844	2,642	54.5

In 1880 America had very little more railroad than Europe; four years later it had 31,044 miles (26 per cent. more than Europe, and of the total increase of 62,788 miles in these four years more than two-thirds (68½ per cent.) was in America. The vast territory of Asia has as yet only about as much railroad as the single State of Illinois, and seven-eighths of that is in the English dependency, India. This quarter of the globe contains more than half its population, and there can hardly be a doubt that in time it will have to be provided with a railroad sys-

Africa, 29 per cent. is in the French colony of Algiers, and 23 per cent. in Egypt, all very near the north and south coasts, leaving the vast interior without any.

Proportionally the greatest rate of increase since 1880 has been in Australia, but its mileage is still small, as its population. In Europe nearly one fourth of the railroad built since 1880 is in France, which has increased its mileage 3,121 miles, or 19.2 per cent. in four years. In proportion to population it has now a larger mileage than any other European country except Sweden, Switzerland, Denmark and Great Britain and Ireland. In proportion to area it is behind Belgium, Great Britain and Ireland, Holland, Germany and Switzerland. Next to France the largest additions were made in Austria-Hungary—2,096 miles, or 18.3 per cent., closely followed by Germany with 2,055 miles (9 per cent.). More than half the total increase in Europe was in these three countries, but the rate of gain was greatest in Greece—1491 per cent.—due to adding to the 7 miles from Athens to Piræus 102 other miles. The European countries which need railroads most are probably the



VICTOR CALORIC ENGINE—SECTIONAL VIEW.

tem, though experience in India shows that the combination of a large and industrious population with a great extent of fertile soil will not always supply a traffic for a great network of railroads. There are there no less than 21,643 inhabitants per mile of railroad, against 458 here; yet such of the Indian railroads as are prosperous have made their way slowly, and great deliberation needs to be exercised in making new lines.

About two-fifths of the African railroad mileage is in the British colonies in South

Danube provinces, Austria-Hungary and Russia. That is, these countries have a capacity for production which new railroads would make it possible to utilize to great advantage; it does not follow that the Bosnians, Serbs, Bulgarians, Hungarians and Russians would make use of their natural advantages if they had railroads. Some of them make very poor use of what railroads they already have. Russia, which has but one mile of railroad to 52,500 inhabitants, added but 1,192 miles (8 per cent.) to its railroad system in these four years.

In America there were but 15,185 miles of railroad outside of the United States at the end of 1880, and this had increased by the end of 1884, 8,252 miles, or 54½ per cent., to 23,437 miles. Mexico gained most, but Canada was close behind. Elsewhere in America the new construction amounted to but 3,320 miles, of which 1,810 miles were in Brazil and 1,106 miles in the Argentine Republic. In South America altogether there were but 9,515 miles of railroad at the end of 1884, 3,071 miles of which had been opened since 1880, an increase of

The Smith Patent Iron Roofing.

The cuts accompanying this show some of the styles of roofing, siding, &c., made by Messrs. T. C. Snyder & Co., Canton, Ohio. Their H. W. Smith Patent Iron Roofing is suitable for all buildings. It can be attached to either iron or tin girders and valleys. It forms its own ridge and hip caps by a seam combined with the roof, easily formed and nice in appearance.

The best charcoal iron, soft steel and calaminated iron is used. Common iron would

Progress of the South.

Dr. Melville Jackson, of Virginia, in a late address on the subject of Southern progress and civilization, gives some very interesting facts well worthy of consideration.

The South has never been given full credit for what it has accomplished in the way of recuperation from the losses of the war. It has always been cited as an evidence of the wonderful recuperative power of France that it was able to pay to Germany in so short a time the \$1,000,000,000 indemnity fund de-

THE tide of capital and immigration that is turning South continues to attract increased attention. On this subject a late dispatch from Washington to the Indianapolis News says:

The South seems to be attracting a good deal of attention among capitalists of New York and the East generally just now. Within the past few days two prominent citizens of Alabama have been in the city en route home from New York, where they arranged for several millions of capital to be put at once in railroad enterprises in that State. One of these roads is to give Birmingham, the great iron manufacturing city of that State, a direct connection with the Gulf; the other proposes to build a road from Mobile to Dauphin island, an island lying midway between Mobile and New Orleans, some distance off the Gulf shore. The plan is to build a long trestle from the shore out to the island. When the road arrives there it will have, it is claimed, a fine harbor with 30 feet of water. Besides this scheme for building the road out into the Gulf, the company has a plan for the construction of a long line of railway from this fine harbor northward through Alabama, Tennessee and Kentucky, to connect with a line running to Chicago. "The Gulf & Chicago Air-line Railroad" it is to be called, and there are indications that the line is to be an important one in connecting the lakes and the Gulf. These are only sample cases. Large amounts of money are going into the South to be invested in manufacturing enterprises. At Chattanooga and Birmingham there are now being established some of the most extensive iron works in the country. Other railroad enterprises are being pushed in different parts of the South, and word comes that the emigration in that direction of late has been unprecedented. A good many millions of Northern capital are going into the South just now, and that section may look for more prosperous times and a greater expenditure of money.



FIG. 1.

nearly 50 per cent. There is plenty of room there for railroads, if room is all that is wanted.

Calculation shows that of the 290,750 miles of railroad in the world, no less than 174,016, or 60 per cent., are in English-speaking countries. The countries which have the greatest mileage in proportion to population, or the smallest number of inhabitants per mile, are Australia (364 people per mile), the United States (460) and Canada (486). Even the Argentine Republic has a smaller population per mile than any European country, namely, 1,000, while in Europe, Sweden, which has the fewest, has 1,113; Great Britain and Ireland, 1870; Germany, 1,983; France, 1,943; Belgium, 2,106; Austria-Hungary, 2,786.

The cost of railroads, as is well-known, has been greatest in Great Britain, being there \$205,842 per mile of roads; for the Belgium State railroads it is \$123,986; for the French railroads, \$124,642; for the German State railroads, \$105,204; for the German private roads, \$71,877; for the Austria-Hungarian roads, \$104,420. The cheapest system of Europe is the State railroads of Finland, \$30,102; the other Russian railroads stand at \$82,244, against \$63,250 per mile for the railroads of the United States.

The whole cost of the railroads of the world has been \$24,000,000,000, which, however, is only \$24 per inhabitant. In this country the expenditure has been about \$133 per inhabitant; in Great Britain, \$107; in Germany, \$49; in France, \$57; in Austria-Hungary, \$33; in Italy, \$19; in Belgium, \$41; in Sweden, \$25; in Spain, \$29; in Russia, \$14; in Canada, \$89.

WE acknowledge receipt from Mr. W. T. Atkins, of Jefferson, Texas, of a fine sample of iron ore found in great abundance near that city. Jefferson gives promise of becoming an important manufacturing center, and if her people can develop a large iron industry there, as they believe their advantages will enable them to do, that place would take rank as one of the most important of the growing cities of the State.

If you wish to keep posted on the progress of the South, read the MANUFACTURERS' RECORD. Price \$3.00 a year.

not endure the folding. The sheets are carefully inspected, and imperfect ones thrown out. The edges are trimmed with squaring shears, then painted on both sides by a painting machine, that is said to do the work better than can be done by hand.

The materials used are pure boiled linseed oil, mixed with the best iron ore paint. The iron is box annealed and free from scale, hence the paint adheres tenaciously, and it is claimed will not blister nor rub off.

manded of it. The South has accomplished much more. In a single item, its slaves, it lost \$2,000,000,000, while the devastations of the war were far more serious than those wrought by the German invasion of France, because the struggle lasted so much longer and penetrated every portion of the South. Yet from these losses, which destroyed nearly all property, which were fourfold as great as the injury inflicted on France, the South has fully recovered to-day. It has, indeed, ad-

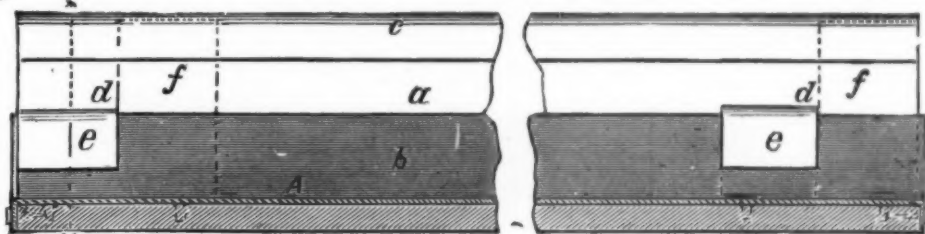


FIG. 2.

The size of sheets is 28 inches wide by 96 inches or more long. The covering width on the roof when the side seams are formed is 25 inches, or two and one-twelfth feet from center to center of standing seams.

The weight is about 80 lbs. per square.

Iron siding is now becoming a popular material for covering factories, mills, gins and sugar houses. The manufacturers of the Smith Patent Roofing now make a beaded iron siding and ceiling in imitation of 3

vanced in wealth and prosperity, not only wiping out the last vestiges of the late war, but establishing new industries and a new civilization.

To-day the South compares with any portion of the country. Dr. Jackson shows there are 44 paupers among 10,000 people in New England to 13 in the South, showing that even if the former is the richer section, wealth is more equally distributed here. In the matter of crimes, 11 are committed in

THE old Roanoke Red Sulphur Springs at Salem, Va., continue to grow in popularity among the noted summer resorts in Virginia. The waters of these springs are among the best in the country for dyspepsia, liver and kidney troubles, hay fever, lung, throat and heart affections, &c. In dyspepsia especially they possess very great efficacy. The hotel has been recently repaired, furnished with bath rooms and other improvements. The resort is beautifully located among the moun-

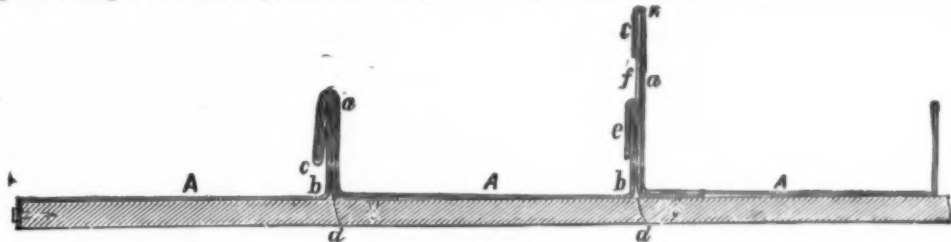


FIG. 3.

inch boards, which can be applied perpendicularly or horizontally, as preferred, to boards, studding or joists placed the proper distance apart.

It is reported that arrangements have been completed for building the Mobile & Grand Trunk Railroad between Mobile and Birmingham, Ala.

New England to 8 in the South, and only 4½ among the whites.

Morally and otherwise, the Southern States to-day rank with any portion of the United States and of the world.

ADVERTISERS wishing to reach the manufacturers of all classes, mining companies, steel, iron and hardware dealers of the entire South, cannot find a better medium than the MANUFACTURERS' RECORD.

tains, well drained and shaded, and offers unusual attractions to families that wish a healthful, pleasant place to spend a vacation or the summer, with every source of entertainment, but without the noise and confusion and dissipation of more fashionable resorts. A pamphlet with description of the locality, testimonials as to the curative properties of the waters, &c., will be sent on application to the proprietor, F. J. Chapman, Salem, Va.

A Complaint Against the Western Maryland Railroad.

BALTIMORE, MD., July 12, 1886.

Editor *Manufacturers' Record*:

Knowing your enterprise and deep interest in everything that pertains to Baltimore, I venture to say something about the Western Maryland Railroad.

I noticed a short time since a letter scaring this road for their high charges for local freight, and the company in reply admitted the charge, but showed by their books that there had been less than a half-ton shipped to that point within the then past three or four months, and that is just the point I desire to attack.

The reason why so small a quantity was shipped was because they could not afford to ship, and not because they did not desire to do so.

A case in point. I own a mill within a half-mile of the Frederick Junction, on the Western Maryland Railroad (lately purchased), and intended to do a merchant mill business, as far as possible trading with Baltimore city. Before consulting the railroad agents I looked up my customers, but upon inquiry about the freight to be paid found the charges to Baltimore in the bags in which I wished to ship to be twenty-one cents a hundred pounds, leaving me a margin of just five cents a hundred to pay me for hauling and handling my goods.

I then went to the Pennsylvania depot and learned I could ship the same goods in the same packages for sixteen cents a hundred, and the distance on this road was about one-half greater.

The price to Philadelphia, about 150 miles, was twelve (12) cents a hundred, and to New York, one hundred miles further, eighteen (18) cents.

The Western Maryland charges drive me from their road with local freight. True, my goods will command higher prices as well as reduced charges in distant cities, but Baltimore would be preferred because I can easily command my business here, whilst Philadelphia and New York require an agent.

The same difficulty is experienced in other kinds of business, notably creameries, of which there are several, as well as other merchandise.

I am told if I ship all my goods over the Western Maryland I can get special rates, and so I may with the other roads; but country shippers only offer a limited business, though in the aggregate it amounts to considerable during the year, and they are not disposed to treat for what they conceive to be small shipments at irregular seasons of the year; but it would be an important matter to them if the company could see the wisdom of adopting such charges as could enable them to do business profitably upon the road. H. S.

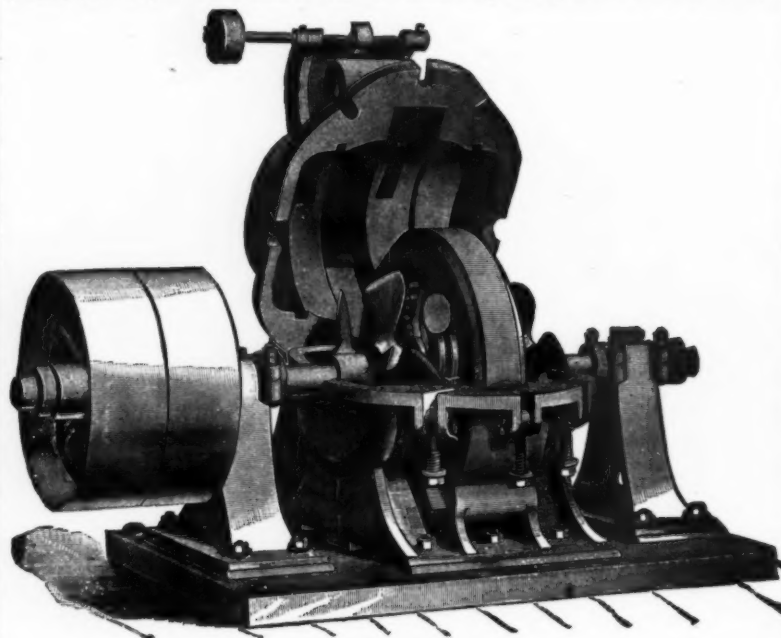
The Frisbee-Lucop Mill.

The Frisbee-Lucop Mill, which, after several years of trial and continued experiment, has been made an assured success for grinding almost every substance for which pulverization is required, is one in which rollers, revolved round and against the inner periphery of a ring, exert a heavy centrifugal force. Their action is twofold: The rollers, in their rapid revolution, strike a substance interposed with the same effect as the stamp in the mortar of a stamp mill; then, in rolling over the substance, exert their pulverizing force in the same manner as that in which a "Chili" mill operates, the great pressure due to the centrifugal force of the rollers from their high speed enabling the mill to do a very large amount of work in a limited area, giving a machine of large capacity in small compass.

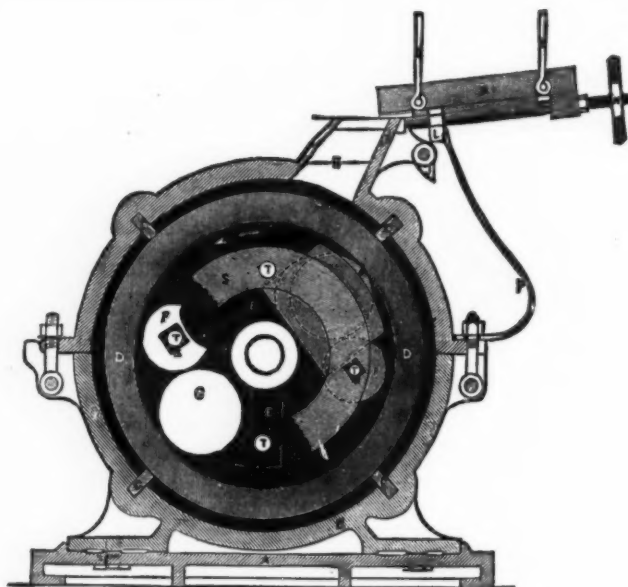
The mill has reached its present state through a succession of improvements and with many difficulties to be overcome. As

Lucop, it was susceptible of but limited use, as it would not endure for grinding hard substances. Little was done to improve it in this particular until the summer of 1883, when one of the Lucop & Cook mills in use at a gold mine, in which the rollers were carried on shafts passing through their axis, with the ends of shafts held in slotted arms, was improved by carrying the rollers loosely

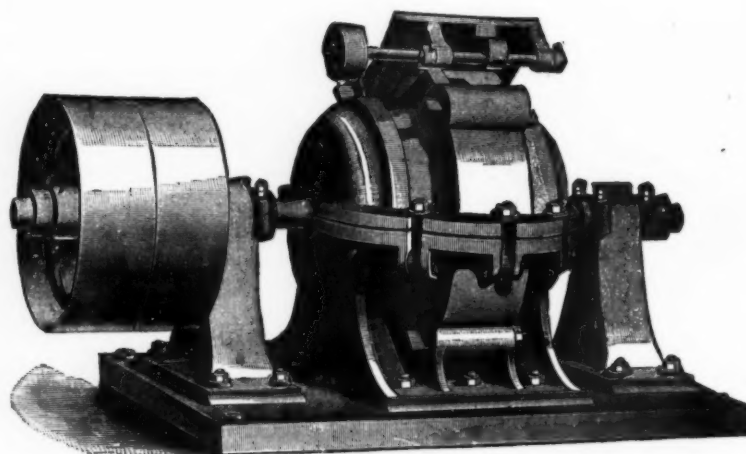
it came from the hand of its first inventor, cent per ton for renewals as against 25 to 40 cents per ton for buhr-stones. Constant effort has been made to improve the mill in its details until little is left to be done in that direction. Steel and wrought iron now take the place of cast iron in all the wearing parts requiring strength and endurance. The feeding of material to and its discharge from the mill have been carefully considered and made as perfectly automatic as possible, so



FRISBEE-LUCOP MILL.



FRISBEE-LUCOP MILL.



FRISBEE-LUCOP MILL.

(without shafts or spindles) in a chamber formed by two disks, the main carrying arm on shaft of mill, and a driver which pushed the roller round in its course. In carrying the rollers on shafts or spindles both arm and shaft were rapidly worn out, while the later construction made the wear of the parts so little that the cost per ton in grinding quartz ores is said to be much less than for stamps, and for phosphate rock about one

that only the most ordinary attention is required in running it.

This mill is now manufactured by the Frisbee-Lucop Mill Co., 104 and 106 Washington street, New York. All the improvements that have been put on the mill since Lucop & Co. had it have been made by Mr. Frisbee, who is an old mechanical engineer of long experience in mining and milling.

Subscribe to the *Manufacturers' Record*.

MINING NOTES.

By T. K. BRUNER, Salisbury, N. C.

THE CATAWBA MINE

was formerly known as the King's Mountain Mine, and is located near the village of King's Mountain, in Gaston county. The present management found a new name desirable for several reasons (which need not be given the public), and happily fell on this as being the name of the aborigines who inhabited the region at its discovery. This new company is made up of gentlemen from Washington city. They have taken hold of the property with a determination to find out what is in it. At present they are forking the water from the main working shaft, which is 332 feet deep. The water would have been cleared by this date but for the incessant and unprecedented rainfall during the last six weeks. This has kept the mine full in spite of the efforts of the two large pumps used for draining it. But recently the pumps have been gaining steadily, so that in a few weeks it is expected to reach the ore body in the bottom. Prof. Geo. B. Hanna, in speaking of this mine, says: "The vein is of great thickness, sometimes reaching to forty feet; the front vein has generally been the richer; assays run from \$3.55 to \$11.84, \$16.79 and \$45.94.

The vein is in limestone; its great width, the ease with which it is worked and milled, and the small amount of sulphurets (about 3 per cent.) combine to make even the low grade material profitable ore to treat. The mill has 40 stamps. A yield of \$750,000 is attributed to this mine." This report was made before the present company took hold, and shows that they have something tangible to work for. Mr. C. E. Hawley, M. E., of Washington city, has the general management of the affairs of the company, and Mr. J. C. Horton is superintendent at the mines. Mr. Hawley finds that the whole of his time is also necessary at the mine. The locality is different from the usual auriferous deposits of this section, and the development of the property will be watched with interest.

THE VEIN MOUNTAIN MINE.

This mine, located in McDowell county, 12 miles southeast from Marion, is in active operation. For many years it has been worked as a placer mine, and is still valuable as such, but no placer work is being done. They are sinking on a quartz vein, which is from 18 inches to 2 feet in width. This material is reduced on a 10-stamp mill and amalgamated on ordinary copper plates. This mill is not overworked, as only 7 to 8 tons are reduced per day. Supt. Gaden was absent when the property was visited, and more specific information could not be had. The mill man, in speaking of the yield from the mill, said that a recent clean-up after nine days run resulted in 1,100 pennyweights of gold. This furnishes an idea of the value of the ore, which, if regularly producing at that rate, is simply remunerative.

HOLTSHOUSE MINE.

A recent visit to the Holtshouser, 8 miles southeast of Salisbury, revealed the fact that much important work has been done there. Prof. J. M. Tiernan has charge of the property, and since his science is largely adulterated with practical sense, the result of some 30 years' experience, one naturally looks for careful work. There is nothing to disappoint at the Holtshouser. He has sunk a shaft every 200 or 250 feet along the surface and on the outcrop of the vein, to a depth of from 65 to 85 feet. These prospect shafts extend over nearly half a mile, and develop a vein of auriferous brown quartz, which averages four feet at the bottom along the entire length. This gives in sight an ore body of say half mile in length by 85 feet in depth by 4 feet in width. This proves the ground to that extent be-

yond a quibble. At present the force is engaged in sinking a main working shaft, which has reached a depth of 70 feet. This shaft is a model of good workmanship, and is located so as to allow the transportation of the ore on gravity cars to the stamp mill.

The entire plant of machinery built for the Bullion Mine (only used there about ten days when the free-milling ores changed into heavy sulphurets, so discouraging the owners as to cause them to abandon the work) has been bought, and is now being set up at the Holthouser. This plant consists of steam hoister, 10-stamp mill, engine-pump, two large boilers, one breaker, and blacksmith's tools. This machinery is to be added to as occasion requires. The present outlook gives great promise of the mines becoming a regular producer.

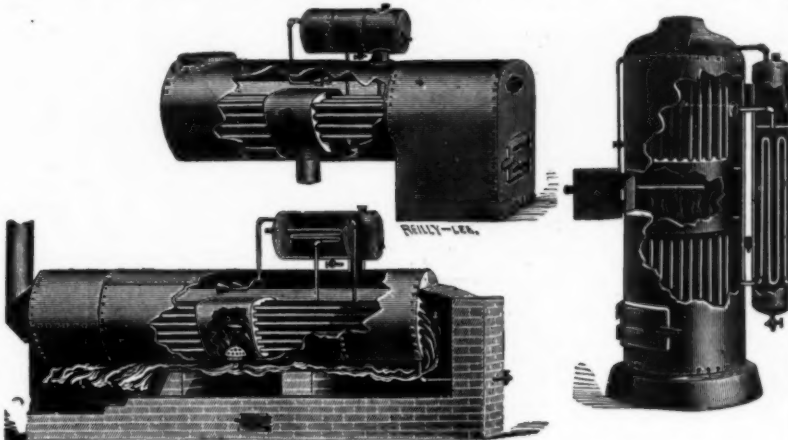
EMERALD AND HIDDENITE MINE.

Prof. W. E. Hidden is engaged in sinking two more shafts in search of the beautiful

the end movement, so important while using the rear face plate. The section marked 1, at the base of the head stock, is shown a mandrel, the exact duplicate of the one in the stock, and is intended to display the form of the corrugations. The screw sleeve 2, upon the back end of this mandrel, forms an adjustable end pressure bearing, without interfering with the rear face plate. The mandrel passing through this tubular screw, and having a face plate upon the end, is designed for turning large circles. The shoulder on the inside of the screw sleeve is thoroughly lubricated by means of a novel device.

The cone is made of cherry, glued up from thin sections, and doweled, and has turned flanges neatly fitted in the wood, and attached to mandrel by keys. The hand wheel and tail stocks are turned and polished. The edges of boxes on head stock are also turned and polished, and the whole fit-

flue in the fire box section than in the uptake section is used; say from 3 to 4 inch in the fire box section and from 2 to 3 in the uptake section, thus enabling a larger body of flame and heat to reach the chamber when most needed. By the use of this combustion chamber a larger quantity of the smoke and gases from the fire are consumed before reaching the chimney. The combustion of the smoke and gases contained in this chamber is further increased by inserting a perforated steam pipe transversely across the center of the boiler, into which live or exhaust steam may be applied, escaping in the form of jets and mingling with the gases, making a more intense heat. By turning on a full head of steam into this pipe the chamber and rear section of flues can be kept entirely clean from soot or light ashes and the draught be increased. Over the man-hole or inlet to the combustion-chamber of the stationary boiler is placed a hollow perforated tile admitting a portion of the flames on their passage to the chimney and igniting the smoke and gases contained therein, forming a more complete combustion. The Feed Water Heater, Steam and Mud Drum and Boiler Cleaner is simple in its construction and can be applied to any style of boiler. The drum by the use of a division head is divided into two compartments, one acting as steam drum, the other containing a coil of pipe through which the water is fed to the boiler. This portion of the drum is connected to the boiler by two separate pipes, one passing through the leg of drum, the other through the top of boiler, on the end of which is placed from one to four ellipse funnels or skimmers as the size and style of boiler may require. These skimmers are placed on each side of the boiler, the pipes connecting just below the water line forming a complete circulation of water around the heater coil and carrying off all sediment and dirt which can be drawn off at any time through the blow-off valve.



COMBUSTION-CHAMBER BOILER, FEED WATER HEATER AND BOILER CLEANER.

gem stones, after which the mine takes its name. One is very near the old main shaft, and is going down in hornblende gneiss; the other, some 150 yards distant, is going down in clay. This latter has been sunk on a brownish streak, which has yielded some highly modified quartz crystals, which Prof. Hidden says accompany the gem producing spodumene. In this shaft he has already found some gems, and he thinks the indications good for other profitable finds.

He exhibited a cut emerald, a recent find, which he declared the peer of any emerald of its size and the finest one ever found in America.

Improved Pattern Makers' and Wood Turning Lathe.

The engraving on this page represents an Improved Pattern Makers' Lathe, 24 inch

ted up in good style. Patents are being secured for these several improvements.

For photographs and other information, address the manufacturers, Purdy Machine Co., Cleveland, Ohio.

The "Mitchell" Combustion-Chamber Boiler Feed Water Heater and Boiler Cleaner.

Mr. John Mitchell, 312 11th St., Louisville, Ky., is the manufacturer of certain attachments for boilers designed to effect a saving in fuel.

The accompanying engraving shows improvements as applied to three classes of steam boilers, but it is said they can be adapted to almost any class of flued boilers. The combustion-chamber, as can be seen

A Southern Winter Resort.

[Special correspondence MANUFACTURERS' RECORD.]

RALEIGH, N. C., July 10, 1886.

Mr. W. R. Raymond, of the firm of D. D. Crossmond & Co., commission merchants and freight and insurance brokers, of New York and Philadelphia, is having erected a handsome winter hotel at Southern Pines, Moore county, North Carolina, which is said to be the most desirable place in the high long-leaf pine section of the South for persons suffering with throat and lung troubles. The house will be entirely enclosed in glass, and open fire-places will be so arranged as

location will surely make the place equal if not ahead of any Southern resort. At present lots are being given to those who will build upon them before the coming winter.

Notes from Charlotte, N. C.

[Special correspondence MANUFACTURERS' RECORD.]

CHARLOTTE, N. C., July 9, 1886.

The city of Charlotte, N. C., with a population of ten thousand inhabitants, wants to give to a responsible company a liberal franchise to put a line of street cars through the principal streets of the city. Mayor Wm. Johnston can give particulars.

An electric light company has been lately started, and promises gratifying success. A water works has been in successful operation some three years or more, and the city has just contracted for a complete sewerage system. Salt glazed terra cotta pipe will be wanted. Address D. A. Tompkins, engineer.

E. D. Latta & Bro., Charlotte, N. C., will add steam power to drive one hundred sewing machines in their clothing factory.

Union Furniture Co., Union, S. C., have broken ground for their new factory. D.

Arkansas Mining Notes.

CRYSTAL SPRINGS, ARK., July 8, 1886.

Editor *Manufacturers' Record*:

I intend to put machinery in the Black Copper and in the Black Eagle mines at this place in a short time.

E. R. Morfit is erecting a 40-ton smelter here.

Berry & Bennett will want machinery for their mine. DR. J. H. MASTERSON.

DANVILLE, VA., July 10, 1886.

Editor *Manufacturers' Record*:

It is proposed to build a line of street cars here. A charter has been granted, and the town council has passed an ordinance giving the franchise, with 30 years' exemption from taxation. The company has been organized and steps taken to get subscription to the stock. Minimum capital \$30,000; has not yet been subscribed, but it is hoped it will be raised soon. Messrs. Hoffman, Lee & Co., of Baltimore, are interested in the proposed company. WM. ROBERTSON.

St. Louis Iron Market.

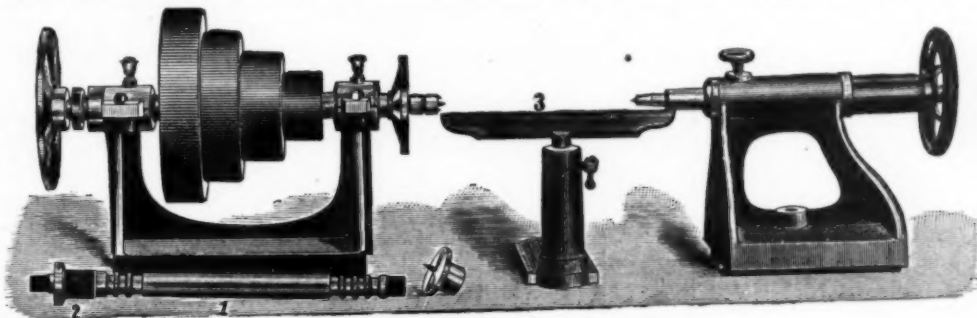
Specially reported by ROGERS, BROWN & Co., Gay Building, 204 N. 3rd street, St. Louis. W. H. SWIFTS, Manager.

ST. LOUIS, July 12, 1886.

The market continues to improve, and prices on some grades have slightly advanced, and the outlook generally is quite encouraging, notwithstanding the somewhat gloomy reports from other iron centers. There is considerable demand for old rails and wheels at prices somewhat higher than those quoted a few weeks since. We quote:

HOT-BLAST CHARCOAL.	
Missouri.....	\$16 00@17 00
Southern.....	17 00@18 00
Ohio.....	— — —
COKE AND COAL.	
Missouri.....	— — —
Southern No. 1.....	16 50@17 50
Southern No. 2.....	16 00@16 50
Southern No. 3.....	— — —
Ohio Softeners.....	17 00@20 00
MILL IRONS.	
Missouri.....	15 50@16 00
Southern.....	14 00@15 50
CAR-WHEEL AND MALLEABLE IRON.	
Southern.....	20 00@25 00
Lake Superior.....	21 00@23 00
MISCELLANEOUS.	
Old Wheels.....	15 75@16 25
Old Rails.....	— — —
Connellsville Coke, East St. Louis.....	— — 5 65

MANAGERS of mills, factories, furnaces, mines, etc., and parties starting manufacturing enterprises, and needing machinery or supplies of any kind, will find it profitable to consult the advertising columns of the MANUFACTURERS' RECORD. Its pages contain names of the best houses in the country among manufacturers of and dealers in machinery and mill supplies.



IMPROVED PATTERN MAKERS' AND WOOD TURNING LATHE.

swing, with improved rests and adjustable spur center.

The head and tail stocks are heavy and well ribbed, and are capable of sustaining anything placed between the centers.

These stocks are planed on the under side, and are in perfect line with the centers.

The mandrel, which is made of steel, has large bearing boxes, heavily corrugated and lined with the best genuine Babbitt metal. These boxes are planed and fitted in a substantial manner, there being but little strain on the cap screws when in operation. The main or live spindle is provided with a device of recent invention to compensate for

from the engraving, consists of a drum or separate shell with two heads, located about the center of the boiler and connected by two separate and distinct series of flues. By shortening the flues in this manner it is claimed that the large amount of expansion and contraction in ordinary flued boilers is lessened. It is a well-known fact that the tubes or flues are more injuriously affected at the ends nearest the fire box, and by forming them in sections only a portion of them need replacement within a given time instead of the whole. They are also more easily repaired and kept clean. In the vertical or locomotive class of boilers a larger

to heat up all the verandahs, thereby the guests can have the pleasure of an almost perpetual summer, for when it is too cold to be out the fires will be kept burning in the verandahs, which, being inclosed in glass, admits the light but keeps out the rain and cold. At Southern Pines twenty-five cottages are now being erected by Northern people for winter use. The place is destined to be a fashionable and popular resort for Northern people. Exceeding two hundred Northern newspaper men own lots in the resort, and some of them are building houses. The influence of the newspaper men and the superior advantages of the

Cotton Seed Oil Mill and Ginnery FOR SALE.

Capacity twenty tons per day. Titles perfect. A fine and valuable property, in the town of Pittsburgh, Texas. For particulars, address,

E. VAN WINKLE & CO., Atlanta, Ga.

For Sale, Cheap.

4,000 ft. 3 in. & 52 ft. 6 in. Gas Pipe.

Has been used only 6 months for conducting water. Will be sold in any quantity.

Geo. H. Cornelson,
Orangeburg, S. C.

FOR SALE.

AN ESTABLISHED BUSINESS and a splendidly built two-story brick building erected expressly for it. Fine opening for a man of small means, who wants to engage in the manufacturing, repairing and selling of buggies, wagons, plows, etc. Reason for selling: Desire to engage exclusively in the manufacture of farm wagons for the wholesale trade. Apply or write to **Owensboro Wagon Manufacturing Co., Owensboro, Ky.**

65-HORSE-POWER HORIZONTAL, STATIONARY STEAM ENGINE FOR SALE!

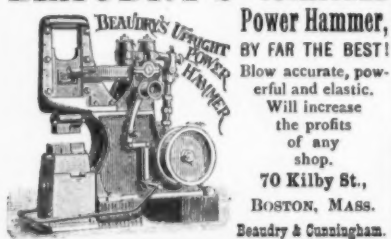
Second-hand, but warranted good as new. Will be sold cheap for cash. Address,
W. C. BUCHANAN, Lancaster, Pa.

Wanted!

A practical machinist, with some capital, to take partnership and entire charge of a machine shop equipped with new tools. A foundry, doing a large business, will be run in connection with same.

Address **MURRAY & STEVENSON,**
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Power Hammer,
BY FAR THE BEST!
Blow accurate, powerful and elastic. Will increase the profits of any shop.
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COMMON SENSE ENGINES.



Simple, durable, economical perfect, fully guaranteed. Boilers all wrought iron. See list of agents in Catalogue. Agents wanted everywhere.

Stationary Engines from 6 to 100 Horse Power. Portable from 6 to 25 H. P.
COMMON SENSE ENGINE CO.,
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THE Manufacturers' Record

should be in the hands of every manufacturer and business man who desires to keep informed as to Southern industrial affairs, or who has any interest or concern in the progress of the South. The wonderful development of the South is attracting attention all over the world, and the progress of this development is faithfully chronicled from week to week by the **Manufacturers' Record**. It is conceded to be the foremost exponent of the industrial interests of the Southern States. Price \$3.00 a year.

FOR SALE.

Second-hand engines at the following bargains:

	Price.
*1 20 x48 engine and 18 ft. fly-wheel	\$ 950
*1 15 x30 " " 12 " "	700
†1 16½x36 " " 12 " "	1,225

*Plain slide valve. †Putnam Automatic Cut-Off.

Delivery F. O. B. Columbus, O. Address

COLUMBUS MACHINE CO.
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FOR SALE at a Bargain.

ONE STATIONARY SLIDE VALVE ENGINE, 35 H. P., 13x22 inch cylinder, with return tubular boiler and all fixtures complete. In good condition, having been in service only six months.

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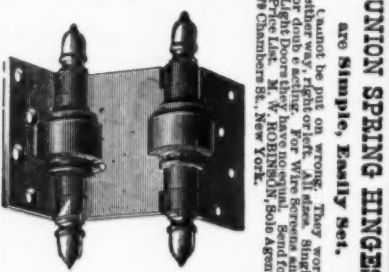
Agencies in Boston and London.

This business furnishes favorable opportunity to **SOUTHERN SELLERS**, whilst it brings reliable **INVESTMENT TO CAPITALISTS** by a system that refuses to handle property that will not submit to examination and report by experts of this office; thus providing in the best markets full, skilled and guaranteed description of distant offerings. Expert examiners at various Southern points. Circulars on application. Correspondence invited.

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Sixty acres of fine tobacco land with splendid two story house and beautiful yard, fronting about 350 feet on the main street. In a town of 150 to 175 population, 15 miles from a city of 15,000 inhabitants and one of 5,000. The house is 300 yards from depot. There is a large stable, carriage house, corn crib and other out-houses, including 3 tobacco barns and 2 tenant houses. Good well of freestone water; 400 peach and apple trees, and 425 grape vines, all in full bearing. Splendid climate; healthy location. The buildings alone cost \$3,500. Will take \$2,500 cash. Special reasons for selling. Address **J. P. R.,** care **MANUFACTURERS' RECORD.**



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are simple, easily set.
Should not be put on wrong. They work smooth and strong. For more information, send for Circular. Light Door Hinges have no equal. Send for Circular. **M. W. ROBINSON,** Sole Agent, 79 Chambers St., New York.

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Baltimore, Md.
Mention this Paper.

Managers of mills, factories, furnaces, mines, etc., and parties starting manufacturing enterprises, and needing machinery or supplies of any kind, will find it profitable to consult the advertising columns of the **MANUFACTURERS' RECORD**. Its pages contain names of the best houses in the country among manufacturers of and dealers in machinery and mill supplies.

Get the Best at First.

The Holyoke Machine Company, of Worcester, Massachusetts, advertise in this issue their well-known **Hercules Water Wheel**. This wheel has many points of merit that strongly commend it to the attention of those who use water power. The most thorough tests have demonstrated its many good qualities. In Holyoke it is the standard water wheel, the aggregate horse power of the Hercules wheels in operation there being greater than that of all other wheels combined. These wheels are very popular in the South as well as in the North, having been in use for many years in a large number of Southern mills. There are four of the Hercules wheels now in operation in the big cotton mills of the Eagle & Phenix Manufacturing Co., Columbus, Ga., and Mr. John Hill, of that company, in writing, Feb. 25, 1885, to the Holyoke Machine Co., said: "Within the past four years I have ordered four Hercules wheels, all of which have given the purchasers entire satisfaction. Three of the wheels are on regular duty in the Eagle & Phenix Mills. The first wheel ordered did so well that a 'Hercules' wheel has been added each time a new wheel was wanted. In the Eagle & Phenix Mills I supervise twenty water wheels of six different styles. The 'Hercules' is by far the most durable and best made wheel in use here, and, in fact, I know of no wheel its equal mechanically. It is all that can be desired in economy of water. In fact, it is a strictly first-class wheel in every way, and the wheel to buy, use and depend upon."

That is a pretty strong letter, but it is only a sample of letters received by the manufacturers of this wheel. Among the recent shipment of wheels have been two—one a 54-inch and one of 60-inch—to a Georgia cotton mill. Two Hercules wheels are being put at Natick Cotton Mill, and one at the Arctic Mill of B. B. & R. Knight near Providence. This will make eleven wheels furnished to this well-known firm, one of the most prominent in the manufacturing line in New England. Hercules wheels are sold in England, Ireland and Scotland, and on the Continent, a cable order having been received only a few days ago for one to go to France. The manufacturers say: "The Hercules gives the most power for its size and the highest average percentage from full to one-half gate of any wheel ever made." Their advice to all users of water wheels is to "get the best at first." If you are interested in water wheels, if you want a new wheel or a larger wheel, or a better wheel than you are using, write to the Holyoke Machine Co., Worcester, Mass., for catalogue No. 3.

IMPORTANT!

STANDARD WATCHMAN'S CLOCK
20 FINE MEDALS AWARDED
FOR 12 STATIONS COMPLETE PRICE \$50
THE BEST IN THE MARKET
IF NOT SATISFACTORY RETURN GOODS AT MY EXPENSE
SEND FOR CIRCULAR **O.E. HAUSBURG**
71 NASSAU ST. N.Y.



Bates' Hand Elevators.
Patented April 18, 1871. Released July 28, 1876.
OVER 6,000 IN USE.

Adapted for Warehouses, Stores, Factories, Hotels, Public Institutions, and every place where merchandise, &c., is transferred from one story to another.

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Roller Covering, Loom Pickers and Strapping.

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Wrought Iron Pipe Fittings and Brass Goods. Southern Agents for the celebrated "B. C. & D. Oak Trimmed Patent Lap Belting, Galvin Compound Wedge Gate Valve, Imhauser's Watchman Time Detectors, &c.

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Illustrated Catalogue on Application

Business Chances.

For the purpose of making the **MANUFACTURERS' RECORD** a still more valuable medium of communication between its readers North and South, we will publish, **FREE OF CHARGE**, short advertisements, not exceeding 40 words, from those in the South who have good business openings that they wish to bring to public notice, capital wanted for industrial enterprises, &c., &c.; while readers in other sections who desire to engage in manufactures at the South are also invited to use these columns, without cost, either in seeking information regarding the advantages and special claims of different localities, or for asking about good openings for men and money. This department is also free for Southern manufacturers who wish to advertise for mill managers, superintendents, engineers, &c.

In corresponding with any of these advertisers please mention the **Baltimore Manufacturers' Record**.

Parties advertising in this column must have replies sent to their own address, and not to care of Manufacturers' Record, unless stamps are sent for forwarding replies. Advertisements sent not in accordance with this requirement will not be inserted.

WANTED.—A partner with \$5,000 to take half interest in an established business (manufacturing a staple article), having good trade in five States, paying 50 to 75 per cent. profit. Capital needed to extend business. Address, with references, J. B. Holmes, Atlanta, Ga., or James G. Holmes, 60 Buchanan's Wharf, Baltimore, Md.

FOR SALE.—The right to cut the timber from 40,000 acres of land, heavily timbered, (with good facilities for handling,) lying in a solid body in Burke county, N. C. Apply to Piedmont Lumber Ranch & Mining Co., Piedmont Springs, N. C.

PURCHASER WANTED for the waste of a shuttle mill; pieces of dogwood, useful for a variety of purposes, but too small for shuttles. Address W. N. C., care MANUFACTURERS' RECORD.

OPPORTUNITY.—Riverside Station, Shenandoah Valley Railroad, Rockbridge county, Va., is a good point at which to locate any manufacturing enterprise working wood and iron material. Arrangements can be made for water power if desired. Address J. C. Shields, Staunton, Va.

FOR SALE.—The Winchester Foundry and Machine Shop, situated in the Valley of Virginia. Capacity for 20 to 30 men. Largest collection of patterns in the State. Machinery running and in good repair. Town has 6,000 inhabitants. Sell because of ill-health. Address, William T. Gilbert, Box 195, Winchester, Va.

A PRACTICAL MAN has money to invest along with some local capital in building and operating an ice factory in any good locality in the South. Would like to receive information as to places where there is an opening. Address, Bristol, care MANUFACTURERS' RECORD.

SITUATION wanted by a practical machinist, engineer, sawyer and saw filer. Address, J. B. Thomas, Melson, Ga.

IRON FURNACE FOR SALE.—One of the most desirable charcoal furnaces in Virginia, located in Wythe county, will be sold on liberal terms; abundance of fine ore, water and timber. Address J. A. Walker, Wytheville, Va.

I HAVE an orchard of six hundred young bearing apple trees, which I would like to put into a partnership for conducting a fruit and nursery business. There is an abundance of land for extension of the orchards. I have also fine lands for trucking. Location, Riverside Station, Shenandoah Valley Railroad, Rockbridge county, Va. Address J. C. Shields, Staunton, Va.

WANTED.—A competent machinist who is qualified to conduct a foundry and machine shop, and comes well recommended, can purchase an interest in a well-established business at a bargain and secure constant employment. For particulars address F. B. Alexander, Hickory, N. C.

FOR SALE.—Ten acres of land fronting on side tracks of the Alabama G. S. Railroad, at Tuskalooza. Suitable for furnaces, foundries, machine shops, mills, &c. Plenty of water near the surface. Fine climate, and healthy. Within 25 miles of the finest iron ore, lime-stone and coal in Alabama. Low rates guaranteed on raw materials. Correspondence solicited. Address, F. P. Turner, Tuskalooza, Ala.

FOR SALE.—A splendid water power in Alabama, 12 miles southwest of Anniston, 3 miles south of a depot on the G. P. Railroad, 3 miles west of a depot on the E. T. V. & G. Railroad and A. & A. Railroad. A splendid location for cotton mill, 250 horse-power. Banks and bottoms rock; never failing stream, etc. Address, C. H. Simmons, Munford, Ala.

WANTED.—Practical man for spoke and handle factory; also location for same in Virginia, North or South Carolina or Georgia. Address, E. Maxwell, Carter's Mills, N. C.

FOR SALE.—50 shares factory stock. Average yearly dividends about 9 per cent; also has accumulated surplus of 33 per cent, during past 3 years, which is invested in additional buildings and machinery. Outlook excellent, and price very reasonable. Address, Lock Box 144, La Grange, Ga.

MECHANICAL ENGINEER and draughtsman competent and reliable, experienced on machine tools, hoisting machinery, turbines, mining machinery, etc., desires situation. Address, Peta, R. O. Box 228, Torrington, Conn.

THREE-FIFTHS interest of Pen-Rhyn State Quarry, Washington county, Va., will be sold for \$5,500 cash. Quarry on South Holston river, shows face over 30 feet above water, even and smooth. The best slate for large sizes ever discovered. Remaining interests can be bought. Apply to C. R. Boyd, Wytheville, Va.

WANTED.—Good machinist to take charge of general repair shop; thoroughly competent to repair engines, boilers and general machinery. Also, correspondence with man thoroughly posted in hub, spoke and handle manufacturing. T. T. Windsor & Co., 23 and 25 Wayne street, Milledgeville, Ga.

LIBERAL.—Green Forest, Va., offers fine improved water power and site free to any who will erect and run woolen, paper, cotton, or any other mills working 20 hands or more. Two railroads; plenty raw material. Address B. C. Moomaw, Green Forest, Va.

THE Talladega Oil Mill & Public Ginnery is offered for sale, or would form a stock company for manufacture of fertilizers and soap. Correspondence solicited. W. E. Vancey, Talladega, Ala.

VALUABLE COAL PROPERTY FOR LEASE in Montgomery county, Va., two miles from railroad. Address Chas. C. Kasey, New River Depot, Va.

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WANTED.—A partner to take interest in fruit and nursery business. Address, E. E. Forsyth, Raleigh, N. C.

WANTED.—A partner with \$5,000 capital in a handle factory, now established with good trade; have a good water power. Timber very cheap and location good. Address G. W. Simpson, Salisbury Furnace, Botetourt county, Va.

A GREAT BARGAIN is offered to close out a smoking tobacco factory, well equipped, extensively advertised, with the brand of goods popularly known and handled by a large trade throughout the Southern States. Apply to F. B. Alexander, Hickory, N. C.

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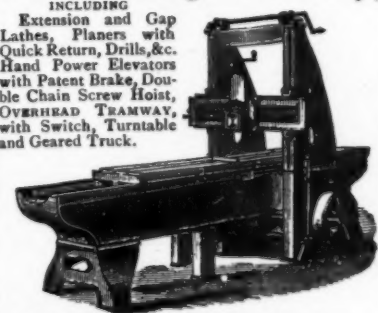
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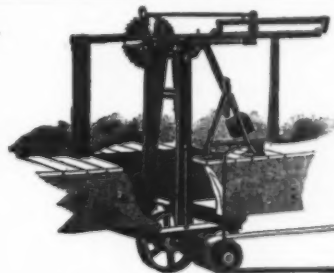
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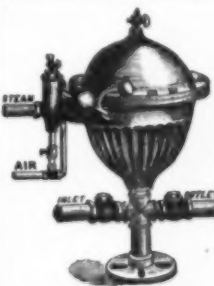
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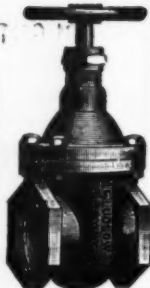
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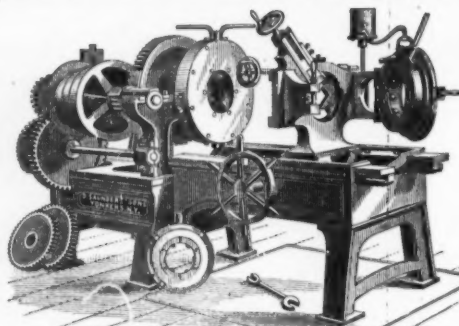


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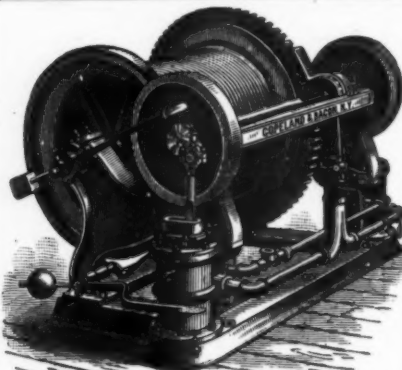
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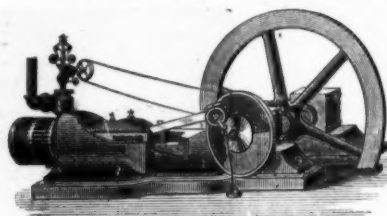
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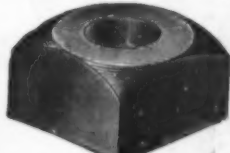
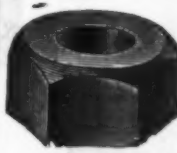


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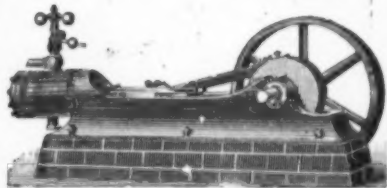
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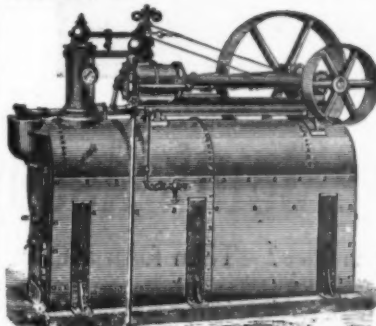
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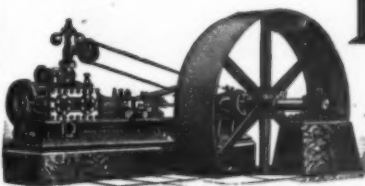
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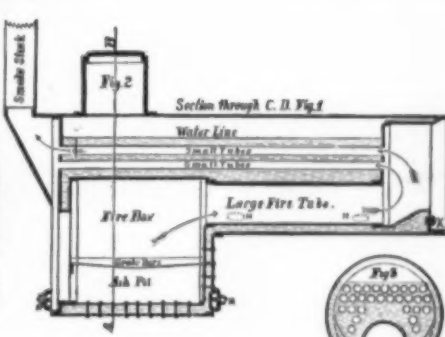
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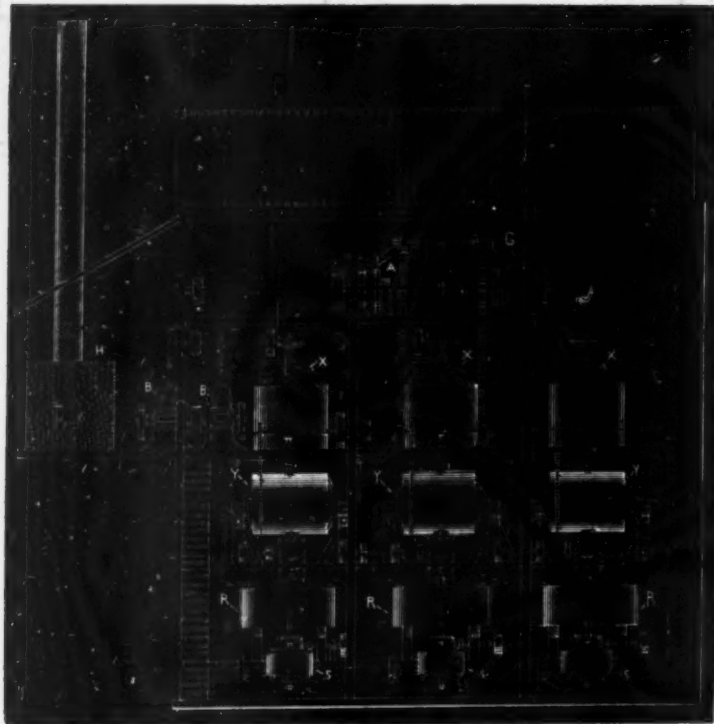


FIG. 1—MEECH PLANT OF MACHINERY, FRONT VIEW.



FIG. 2—MEECH PLANT OF MACHINERY, END VIEW.

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Have you any mineral territory? Then form a Company and develop Gold and Silver Mines by the MEECH process—the most economical of the metal from rebellious ores, such as Sulphurets, Sulphates, Sulphides, Chlorides, Bromides, Oxides, Tellurides.

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Heat, water and attrition, in combination with electricity and chemical action, are the principles upon which we base our process and machinery shown in part in the accompanying cuts.

The Meech plant of machinery set up in a building all in its proper place is shown in Figs. 1 and 2.

Fig. 1 is a front view of a full plant of machinery, with piping, shafting and pulleys, all complete.

Fig. 2 is an end view of the same. A represents the Crusher, G the Rolls, B the Engines, H the Steam Boilers, X the Disintegrator, Y the Amalgamators, R the Settlers, S the Clean-up Pans.

The ores are crushed, and pulverized, and screened to about 40 mesh fine. About 4 tons to a batch, with the proper quantity of salt, soda, and water as may be required (according to the character of ore to be treated), are slowly run into the Disintegrator, occupying about one hour—each Disintegrator being worked alternately so that the surplus steam may be transferred from one to the other, thereby using the steam over and over again.

There the ore is ground under a *high pressure of steam heat* for about three hours. Under this heat and electric attrition the sulphur, talc and chemical combinations will dissolve and unite with the salt and soda, leaving the metals clean and free for amalgamation. Then the decomposed ore is let out through the 4-inch pipe into the revolving Amalgamator, requiring about 20 minutes time. Then about 200 lbs. of quicksilver are put in, the 4-inch valve closed, and the 2-inch water valve connecting the water tank above is opened to produce an internal hydrostatic pressure. At the same time the Amalgamator is revolving. The quicksilver is carried up to the top by each copper shelf and thoroughly circulated through the ore; at the same time a current of electricity is passing from the Disintegrator through the Amalgamator from journal to journal, precipitating the metals that may be in solution, or otherwise, on the copper plates in an amalgam state.

By the *hydrostatic pressure* pressing all of these combinations together the amalgamation is successfully accomplished in about one hour.

Then the pulp is allowed to run into the settler, either out of the journal or out of the valve that admits it. The balance of the time is taken up in slowly running it into the settler. There the quicksilver and amalgam are gathered together and settled in the bowls, then dipped out, strained, retorted, melted and

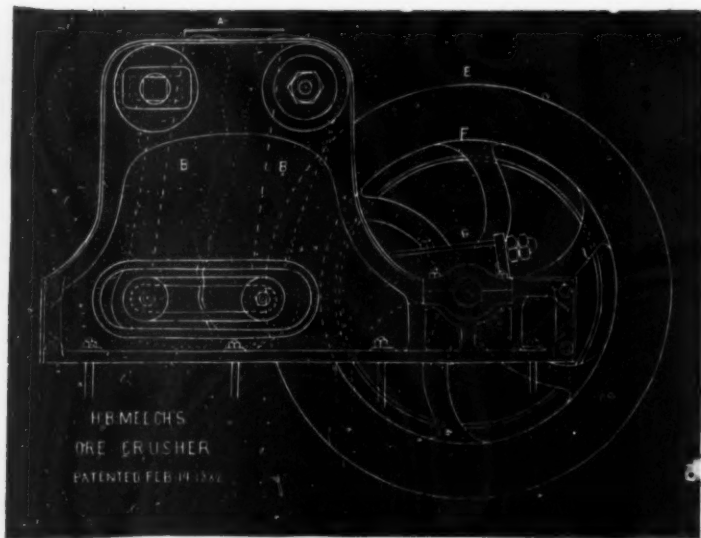


FIG. 3—THE MEECH PATENT CRUSHER AND PULVERIZER.

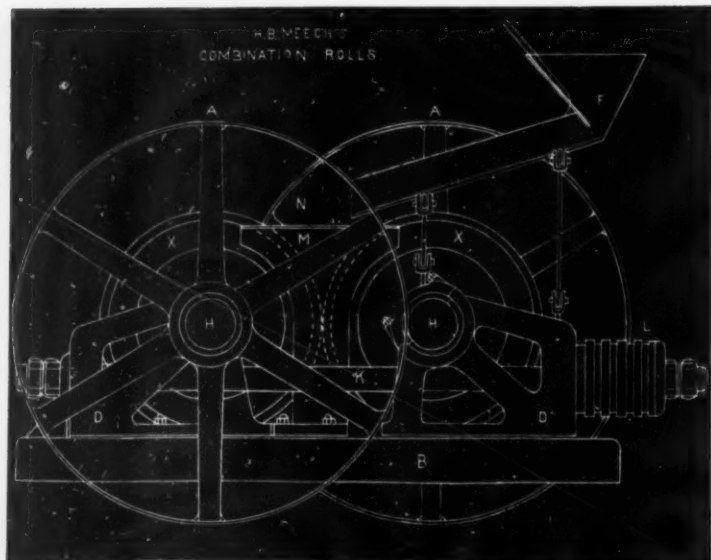


FIG. 4—THE MEECH ROLLS.



FIG. 5—THE MEECH ORE DISINTEGRATOR.

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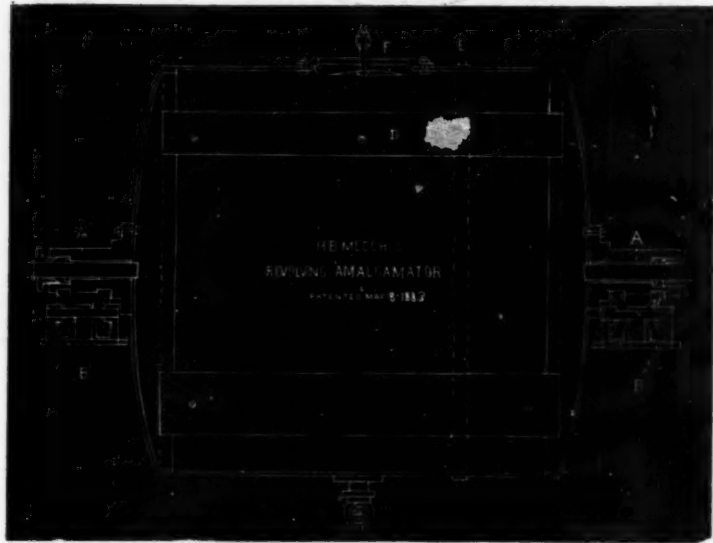


FIG. 6—THE MEECH REVOLVING AMALGAMATOR.

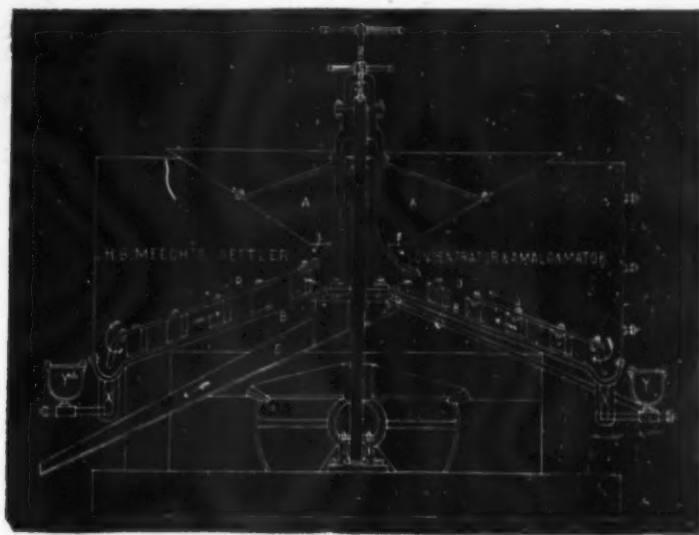


FIG. 7—THE MEECH SETTLER.

Cost of Extraction by the Meech Process is only \$1.50 per ton.

most economical of all methods. The only successful process of treating Refractory Ores. Will successfully extract 90 per cent. Ores, Tellurides, &c. We desire business correspondents in every mining district in the United States.

run into bars as bullion. The clean-up pan is to make sure to save all of the quicksilver and amalgam that may escape the settler.

The machinery is constructed in the strongest and most durable manner conceivable; the combinations, one with the other, of the different arranged machinery, is so that each machine may do its allotted part to accomplish the desired results. The Disintegrator is the principal machine necessary for the successful treatment of the ores, showing that *heat*, attrition and chemical action must be used to clean the ores, showing that the ores must be disintegrated and cleansed before the metals can be amalgamated.

This being true, it must be the **ONLY** process that will successfully prepare and amalgamate ores.

Fig. 3 shows the Crusher and Pulverizer. The first principle of power in this crusher is the lever power, with crank motion and swinging jaws. This machine will crush a large amount of ore per day, making a part of the ore sufficiently fine to go into the Disintegrator, and, in combination with a pair of rolls, to take away the pea size, the two will crush and pulverize more ore than a 20-stamp mill and with less wear and tear.

Fig. 4 is a perspective end view showing the Meech Rolls.

The Disintegrating Machine, as shown by Fig. 5, is made of iron and steel of sufficient strength to hold an internal steam pressure of 100 pounds to the square inch, and so constructed as to grind the ore at the same time the temperature and chemical action are having their effect.

The Amalgamator shown in Fig. 6 is 5 ft. in diameter and 7 ft. long. It is hung upon its journals A, anti-friction roll boxes B, and is revolved by a chain belt, E, and sprocket wheels. The ore is blown in from the Disintegrator through a 4-inch pipe and valve, requiring about 20 minutes of time. We can amalgamate in the Disintegrator, in the revolving amalgamator, and in the settlers, thereby making the most complete amalgamation known.

The ores after passing the Disintegrator and Amalgamator become very fine. Then it requires a proper settler to gather and save the Amalgam. This machine is shown in Fig. 7.

The Concentrator, as seen in Fig. 8, has a vibratory and, at the same time, a rotary motion, and is a perfect pan concentrator. It is a more perfect motion than a miner can give a pan in hand, and has the capacity of a hundred miners. It is a very valuable machine for concentrating many ores, and for free-gold placer washings it cannot be equalled; we use it in our plant as a clean-up pan, to make sure of saving all the quicksilver and amalgam that may escape the settler.

Fig. 9 shows the Meech Retort for both gold and silver. The amalgam is placed in the retort X, then swung into the furnace A by a crane and tackle blocks. Connections are made at the pipe F with the condenser Y. A slow fire is continued until all the mercury in the amalgam is fumed off and condensed into quicksilver. One advantage of this furnace and retort is that, the retort being removed, the furnace can be used for smelting or assaying purposes.

For Full Description Write For Illustrated Catalogue.

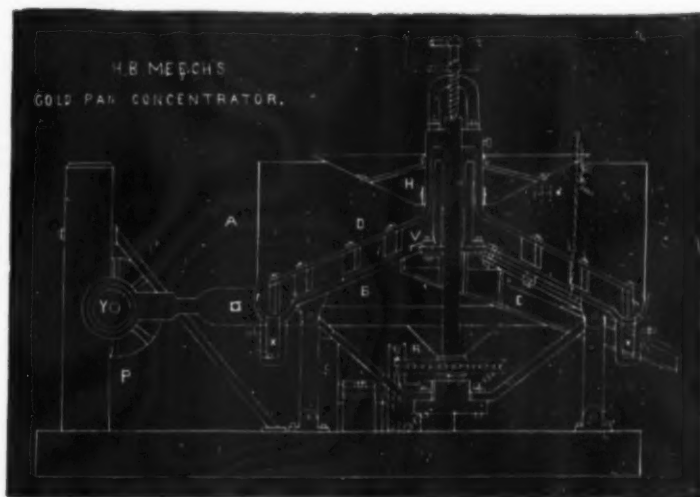


FIG. 8—THE MEECH GOLD PAN CONCENTRATOR.

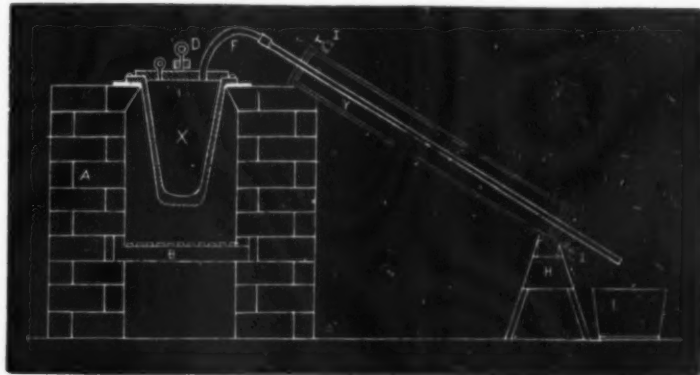
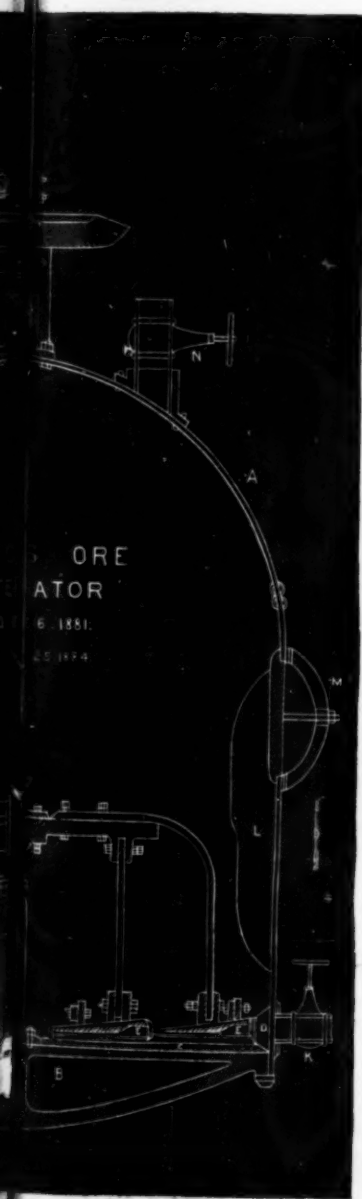


FIG. 9—THE MEECH AMALGAM RETORT FOR BOTH GOLD AND SILVER.



DISINTEGRATING MACHINE.

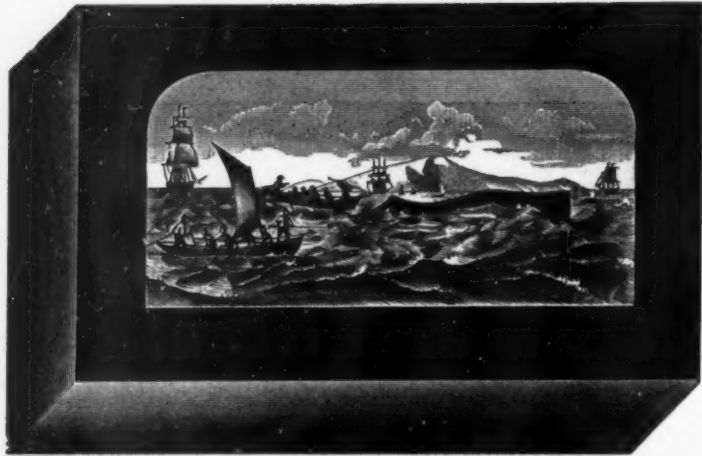
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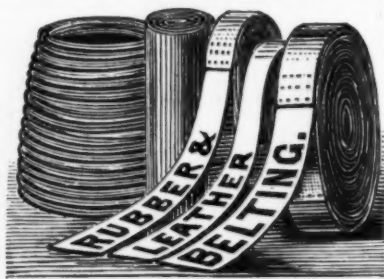
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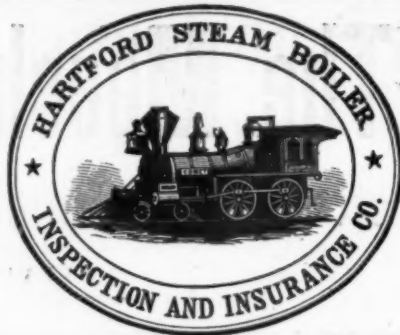
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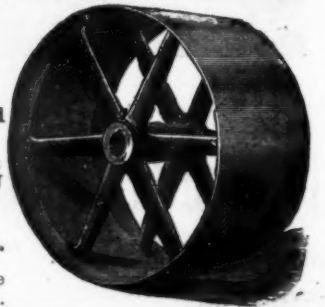
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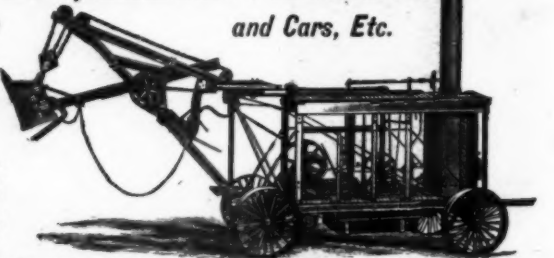
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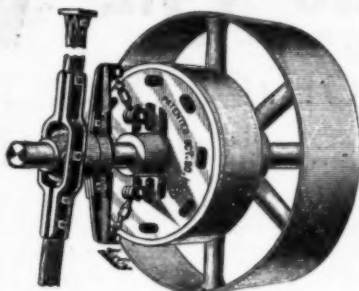
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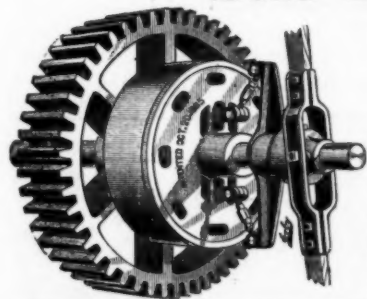


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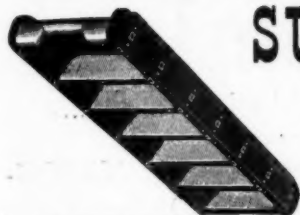
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The value of Flour depends on the proportionate quantity of Gluten, Starch, Sugar and Phosphate of Lime. Maryland and Virginia Wheat, from which our **PATENT ROLLER FLOURS** are manufactured, is unequalled for its purity and superior quality of allible properties.

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Steam & Hot Water.

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We offer you the experience of 14 years, unbiassed by interest in any patent. Write us. We will make specifications for you or do your work, or both.

Hot Water is the system for the South. Correspondence invited. Economy. Efficiency. Durability. Best Methods. Housework a Specialty. See References.

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Low Pressure Generators

PRETTIEST DIRECT RADIATION.

LARGEST MANUFACTURERS OF INDIRECT AND WINDOW RADIATION.

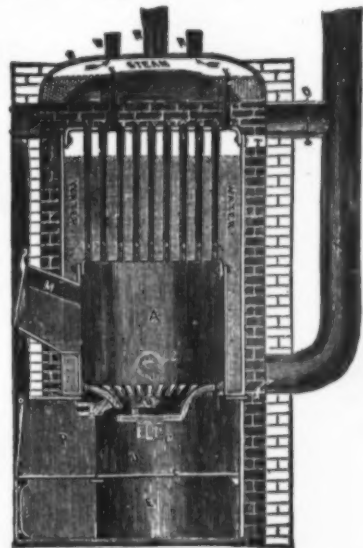
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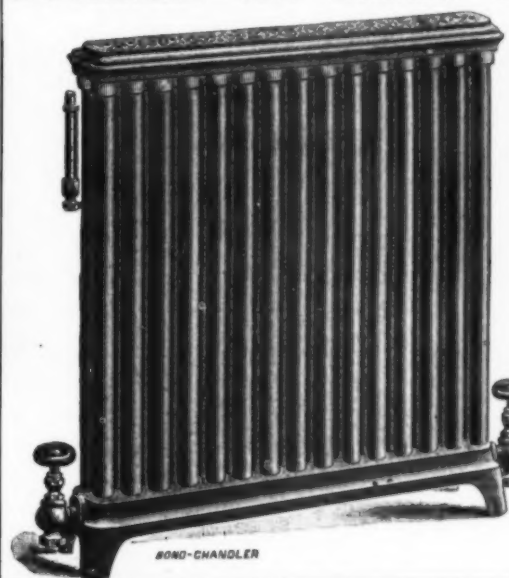
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Our sales from year to year have doubled with good satisfaction everywhere. Send for Circulars.



Perfection x the x Result x of x Experience.



PERFECT Steam Heating

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Elegance, Comfort,
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Warmed by Low Pressure or Exhaust, Steam or Hot Water.

Also, Factories protected against Fire and at a 25% REDUCTION OF INSURANCE by the use of The Grinnell Automatic Fire Extinguishers.

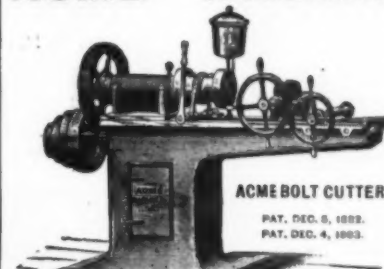
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Cincinnati Steam Heating Co.

187 W. Pearl St., Cinn., O.

Over 800 References, North and South.

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Advantages of the "Acme" Bolt Cutter:

Large bearing on top of Dies by using a Cap. Fine adjustment by differential screw. Positive Toggle Lock. Die-ring connected to Barrel. Positive Motion. Every part exposed to view, it cannot clog with chips or scale. Quickness of changing Dies, (in less than a minute.) No springs used. Index on Head so a fit can be cut at once. Cheapness of Dies. Advantage of Plain and not the disadvantage of Case Dies. Reversible Dies. Even number of Dies and ahead of center. All wearing parts are tempered Steel, made to Jigs and Standard Gages, and are interchangeable. Dies cut in one Head will fit any other, and where more than one Head is used this is a very vital point. The ACME Head can be put on almost any Bolt Cutters, and parties having other make of machines will find a great improvement by putting an "ACME" Head and Dies on it.

JOSEPH B. MATTHEWS & CO.

Engineers and Machinists

41 CENTRE MARKET SPACE,
BALTIMORE MD.

THE MARKETS.

OFFICE MANUFACTURERS' RECORD,
BALTIMORE, July 14, 1886.

Confidence in an active fall trade seems to be very general among all classes of business men in all parts of the country. The indications are everywhere regarded as favorable for steady improvement in trade, and, unless some unforeseen trouble occurs, the late summer will doubtless witness more activity in trade and manufactures than has been seen for quite a while. The large amount of railroad building now going on and the certainty that many important enterprises now being matured will soon be under way, thus giving assurance of much more track laying than for several years, encourages manufacturers of railroad supplies to look for a heavy business during the balance of 1886 and 1887. The immense consumption of iron in railroad work, added to the other consumptive requirements, prevents any important accumulation of pig, notwithstanding the heaviest production ever known in this country.

The wheat crop is much larger than last year, and, owing to the shortage in the yields in other countries, there are good prospects of more demand for American wheat and higher prices than for several years. Shippers are making quite liberal engagements for steamers to load wheat for Europe during August and September. Large wheat exports at better prices than those now prevailing would be of great value to all business interests.

The cotton crop, while not so promising as at this time last year, will doubtless make a good fair yield, and, owing to the reduced stocks of cotton goods, the large cotton consumption and the prospective somewhat smaller yield, prices will probably be more favorable to the planters than of late years. The margin of profit between the cost of production and the selling price has been so small for several years that it has left but little profit for the planters. Higher prices would therefore be a very welcome boon to them. The clearing house returns for the country continue to show an increase in volume over the corresponding time last year, a pretty sure indication of better business.

In manufactured iron prices are unchanged, but trade is a little better and the market somewhat more active. We quote:

Ref. Bar Iron, 1 to 6x3/4 to 1.....	1.85@ 2 c
" " 1 to 4 1/2x1 1/4 to 1.....	1.85@ 2 c
" " 3/4 to 2, round and	
square.....	1.85@ 2 c
Hoop Iron, 1 1/4 wide and upward.....	2 1/4@ 2 1/2 c
Band Iron, from 1 1/4 to 6 in. wide.....	2.30@ 2 1/2 c
Horseshoe Iron.....	2.75@ 3 c
Norway Nail Rods.....	4 1/2@ 5 c
Black Diamond Cast Steel.....	9 @ 10 c
Machinery Steel.....	3 1/2@ 4 1/2 c
Spring Steel.....	3 1/4@ 4 c
Common Horse Nails.....	8 @ 9 c
Railroad Spikes, 5 1/2x9-16.....	2 1/2@ 2 3/4 c
Horse Shoes, 7 keg.....	3 85
Mule Shoes.....	4 85
Steel Boiler Plate.....	3 1/4@ 3 3/4 c
Iron Boiler Plate.....	2 1/4@ 4 c
Boiler Tubes.....	55¢ off list

In pig iron, local trade is confined to supplying the regular orders of the ordinary business, there being no increase in demand nor any change in price. We quote as before, viz:

Baltimore Charcoal Wheel Iron (all Baltimore ore).....	25 00@26 00
Virginia C. B. Charcoal Wheel Iron.....	25 00@26 00
Anthracite, No. 1.....	18 00@19 00
" " 2.....	16 00@17 00
" " 3.....	15 00@16 00
" " Mottled and White.....	13 00@14 00
Old Iron Rails.....	19 00@20 00
Old Iron Rails, D. H.....	20 00@21 00
Old Steel Rails.....	20 00@22 00
No. 1 Wrought Scrap.....	19 00@20 00
Old Car Wheels.....	15 00@16 00

HARDWARE.

The usual mid-summer quiet has not yet been broken by any increased demand, and there will hardly be any improvement in trade until about the 1st of August. The meeting of several large manufacturers, mentioned last week, at which it was resolved to make a general advance of 10% on all goods, does not appear to have had much influence. A circular dated Cleveland,

June 30, and signed by the Lamson & Sessions Co., Cleveland, O.; Hotchkiss & Upson Co., Cleveland, O.; Chapin Bolt & Nut Co., Cleveland, O.; Lake Erie Iron Co., Cleveland, O.; Arms Bell Co., Youngstown, O.; Plumb, Burdick & Barnard, Buffalo, N. Y.; Syracuse Bolt Co., Syracuse, N. Y.; C. B. Head, Pittsburg, Pa.; Oliver Bros. & Phillips, Pittsburg, Pa.; L. M. Dayton, Cincinnati, O.; Michigan Bolt & Nut Co., Toledo, Mich., and the Toledo Bolt & Nut Co., Toledo, O., has been issued, withdrawing all quotations on common carriage bolts, and intimating that new quotations will be furnished on application, and it is understood that the new prices will be an advance of nearly 10 per cent. beyond the prices lately prevailing.

The Covert Manufacturing Co., of West Troy, N. Y., have issued a new catalogue, making some important changes from their former one, and including some new articles of their manufacture not heretofore given. They request that all former catalogues be destroyed. The new one will be sent upon application. Their revised discount sheet, dated July 1st, is as follows:

Loop harness snaps.....	50	Dis. %
"New" loop harness snaps.....	50& 5	
"New" R. E. harness snaps.....	60	
Martingale loop snaps.....	50	
Snap and thimble.....	60	
"New" snap and thimble.....	60&10	
Thimbles.....	60&10	
Round eye snaps.....	60&10	
Round eye swivel snaps.....	60	
Loop swivel snaps.....	60	
Heavy 1 in. swivel snaps.....	60	
"Giant" open eye snaps.....	35	
Open eye snap.....	50&10	
"New" open eye snaps.....	50	
Strap eyes.....	50	
Leather horse tie.....	35	
Web horse tie.....	50	
Horse ties, snap and thimble, (Jute).....	60&10	
" " (Hemp).....	50	
Cattle ties, snap and thimble, (Jute).....	6 & 10	
" " (Hemp).....	50	
Horse tie, "New" snap and thimble.....	60&20	
Cattle tie, "New" snap and thimble.....	60&20	
Lariat leather.....	50&10	
Picket pins.....	60	
Horse tie, O. K., (Jute).....	60&20	
Cattle tie, O. K., (Jute).....	60&20	
Web halter, 1/2 in. Jute.....	60	
Rope halter, 1/2 in. Hemp.....	60	
" " 7-16 in. Jute.....	60&20	
Halter leads, (Hemp).....	50	
" " (Jute).....	60&10	
" " "New" Snap.....	60&20	
Gentlemen's hitching cord.....	35	
Weight cord.....	35	
Hitching weight.....	50	
Driving reins.....	40	
Hammock ropes.....	60&20	
Bull leads.....	35	
Bull snap.....	35	
Soldering irons.....	35	
Soldering coppers.....	30	
Bristle card.....	35	
Breast chain, short snaps.....	50	
Lengthening snaps.....	35	
Open eye breast chain snap.....	35	
Breast chain, long snap.....	50	
Post chain.....	60	
Breast chain, new patent.....	50	
Halter chain.....	50	
Center breast chain snap.....	50	
Stallion chain.....	35	
Cart breech end irons.....	35	
Cart breeching chains.....	35	
Rein chain.....	60	
Heel chains.....	50	
Chain cow tie.....	35	
Back or cart chain.....	35	
Long trace chains.....	40	
Half trace or butt chains.....	40	
Stake chain.....	50	
Martingale chain.....	50	
Rod post hitcher.....	60&20	

At a meeting of the Eastern nail manufacturers, July 9, 1886, the card price was advanced to \$2.20 per keg, less 10 cents for car-load lots, and some manufacturers claimed that they preferred to shut down rather than sell at prices lately ruling. Still nails can be bought lower than the figures given above. The market is quiet, with sales moderate.

Philadelphia Iron Market.

PHILADELPHIA, July 13, 1886.

The only active demand this week is for old rails. Between five and six thousand tons could be sold very easily if they were ready for delivery and prices suited. Holders are trying to get more than they are worth, and buyers are moving up towards sellers' figures slowly. It is probable that the large stocks that are due here within 10 days will all be sold before they arrive. Old rails come from remote points, and freight enters into the element of cost a little more than a year or two ago. Steel rails are selling at \$34 to \$35, and notwithstanding this is the dull season, there is a good deal of inquiry

CINCINNATI CORRUGATING COMPANY.

JOHN F. HAZEN, Prest.

JAMES HICKS, Treas.

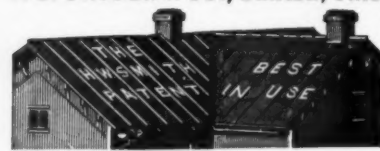
J. G. BATTELLE, Sec'y.

Over 1500 Tons Iron in Stock!

FOUR WIDTHS OF CORRUGATIONS MADE!
STANDING SEAM PLAIN ROOFING!
All Paint Re-ground in Pure Linseed Oil!



T. C. SNYDER & CO., Canton, Ohio,

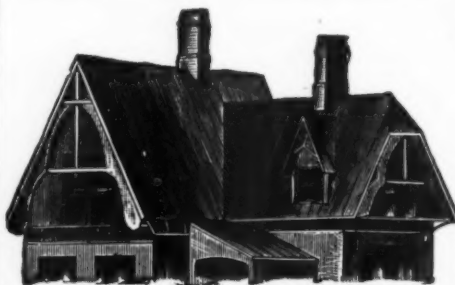


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IRON ROOFING,

SIDING AND CEILING,
Patent Seamless, Solderless Eave Trough,
Malleable Hangers, &c.

Send for catalogue, price list and samples.



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SUCCESSORS TO

W. A. HOOVER & CO.

MANUFACTURERS OF

HOLTON'S PATENT Improved IRON Roofing,

"V" EDGED CRIMPED ROOFING,
SIDING AND CEILING.

Responsible Agents wanted to handle our work in every county in the United States.

Send for circulars and prices. **New Lisbon, Ohio.**



SYKES IRON ROOFING CO., NILES, O.

SYKES' IMPROVED
Best Roof in the
World.
Suitable for all
classes of
Buildings.
Easy Put On.



All my Iron is
Re-Rolled and
Box Annealed,
well Painted on
both sides with
Best of Paint
and Pure Lin-
seed Oil.

Send for Circular and Price List, and mention this Paper.

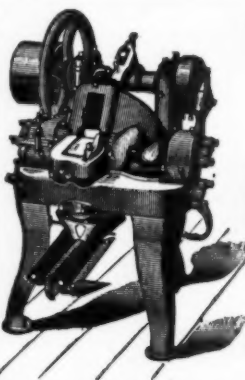
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IRON ROOFING,

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SEND FOR CIRCULAR & PRICES CINCINNATI, O.



The American Nail Machine Co.

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Improved Cut Nail Machines,

AUTOMATIC NAIL SELECTORS and NAIL
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ASHTABULA, - - - OHIO.

Prices and particulars furnished on application.

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Manufacture Agricultural Implements and Machinery, viz: Chilled Plows, Hillside Plows, Cider Mills, Feed Cutters, Corn Shellers, Circular Saw Mills, Mill Gearing, Shafting, Pulleys, and a general line of Machinery.

Will hold any tool having a shank adapted to the ordinary bit stock. Manufactured by the
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 Carr & Crawley.—Shelf and Saddlery Hardware.
 Clark Bros. & Co.—Bolts.
 H. Chapin's Sons.—Planes, Rules, Levels, etc.
 John Chatillon & Son.—Spring Balances.
 R. S. Clark & Co.—Hand and Sleigh Belts.

A. Field & Sons.—Tacks, Finishing and Shoe Nails
 Gooch Freezer Co.—Peerless Freezers.
 H. C. Hart Manufacturing Co.—Shutter and Spring Hinges, Screen
 Frames, &c.
 Hubbard & Co.—Axe, Shovels, Hoes and Saws.
 Kimball's Patent Solid Steel Shovels and Spades.
 Lawson & Branizer.—Keystone Forks.
 W. T. Mersereau & Co.—Stair Rods, Dog Collars, &c.
 Nicholson File Co.
 Peck Bros. & Co.—Brass Cocks.
 Patton Manufacturing Co.—Enameled and Finished Stoneware, &c.
 Penfield, Block & Co.—Tackle Blocks.

Harvey W. Peace Co.—Hand, Rip and Panel Saws.
 H. W. Reed.—Brick and Plastering Trowels, Shoe Knives, &c.
 Scott Manufacturing Co.—Peach and Apple Parers, Ice Creepers, &c.
 Henry Seymour Cutlery Co.—Seymour's and Massachusetts Shears.
 B. Seitz.—Root Hammers.
 Underhill Edge Tool Co.—Hatchets, Adzes, &c.
 Walker Horse Shoe Co.—Patent Horse and Mule Shoes.
 R. Wallace & Son, Manufacturers.—Plated Ware.
 Wheeling Hinge Co.—Wrought Goods.
 Woodruff, Miller & Co.—Ox Shoes.
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Largest Manufacturers of Tackle Blocks in the World.

Manufacturers of the Latest Improved Self-Adjusting ROLLER BUSHED and GENUINE METALINE BUSHED and Iron Bushed Rope and Iron Strapped

— TACKLE BLOCKS. —



Improved Self-Adjusting Roller Bushed Iron Sheave.

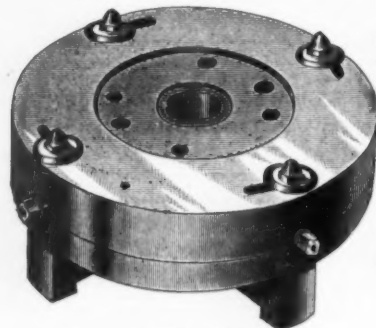
Send for the Celebrated
STAR BRAND.

Improved Harcourt Patent Block.

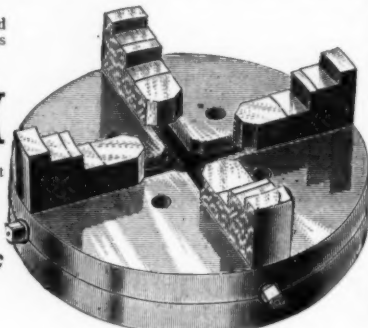
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No. 5.

Improved Self-Locking Link Snatch Block.

NEW PATENT COMBINATION LATHE CHUCK.



BACK VIEW.

This Chuck is constructed
upon the same general principles
as the well-known**Horton Chuck**with the additional feature that
it can be used either as an**Independent,
Universal Concentric
or Eccentric.**

FRONT VIEW.

Warranted to be the
Strongest, Most Ac-
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Operated Combina-
tion Chuck in the
market.

TRADE MARK:

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Clancy's No. 100, per gross.....	dis 90¢	
Nimick & Brittan Mfg. Co.....	dis 90¢	
SASH CORD.		
Common.....	doz 14c, net	
Patent.....	doz 17c, net	
Silver Braided Lake Hemp.....	doz 50c, dis 10¢	
Silver Braid, Lake White Cotton, doz.....	dis 10¢	
Silver Braided Lake Drab Cotton, doz.....	dis 10¢	
Silver Lake Cable Laid, Bengall Unbleached Hemp, 17 cts.....	dis 10¢	
Russian Hemp, 19 cts.....	dis 10¢	
Italian Hemp, 14 cts.....	dis 10¢	
Samson Braided, white cotton.....	dis 30¢	
" " drab cotton.....	dis 30¢	
DASH WEIGHTS.		
Solid Eyes, in 500-lb. lots and over, doz.....	net 1½¢	
SAUSAGE STUFFERS OR FILLERS.		
Wiles.....	doz 80c, dis 25¢	
" " No. 15.....	dis 15¢	
Enterprise Mfg. Co.....	No. 2, \$1.....	
Monarch.....	dis 40¢	
SAWS.		
Boynton's Lightning Cross Cuts, new list.....	dis 40¢	
Boynton's Circular and Mill.....	dis 40¢	
Boynton's Ice.....	dis 25¢	
Boynton's Lightning Hand, Panel and Rip.....	dis 25¢	
Disston's Circular.....	dis 40¢	
Disston's Mill.....	dis 40¢	
Disston's Cross Cut.....	dis 40¢	
Disston's Hand, Panel, Rip, &c.....	dis 40¢	
Hubbard, Bakewell & Co. Circular Saws.....	dis 30¢	
Hubbard, Bakewell & Co. Cross Saws.....	30c. ft.	
Hubbard, Bakewell & Co., One-Man's, X Cut.....	dis 40¢	
Hubbard, Bakewell & Co., Mill Saws.....	dis 40¢	
Peace Circular and Mill.....	dis 40¢	
Peace Hand, Panel and Rip.....	dis 25¢	
Peace Cross Cuts.....	dis 35¢	
Peace Band Saws, all widths.....	dis 10¢	
Webster Cross Cut, with handles.....	dis 25¢	
Griffin's Hack Saws and Blades.....	dis 30¢	
SAW FRAMES.		
White.....	doz \$1.05, dis 10¢	
Saw Rods.....	\$10 list, dis 10¢	
SAW SETS.		
Stillman's Genuine, doz.....	\$3.50 and \$5.50.....	
Stillman's Imitation.....	doz \$3.25, dis 30¢	
Common Lever.....	doz \$2.00, dis 30¢	
Leach's.....	No. 0, \$2.00; No. 1, \$1.50; dis 15¢	
Hammer, Hotchkiss.....	\$3.50, dis 10¢	
Aiken's Genuine.....	\$13.00, dis 50¢	
Aiken's Imitation.....	\$7.00, dis 50¢	
Disston's.....	No. 1, \$15; No. 5, \$30; dis 35¢	
Morrill's.....	No. 1, \$15; No. 5, \$30; dis 35¢	
SCALES.		
Hatch, Counter, No. 171.....	doz \$42, dis 37½¢	
Hatch, Tea, No. 161.....	doz \$15.00, dis 37½¢	
Union Platform, Keystone.....	\$6, dis 45¢	
Chicago Scale Co.....	Special dis	
Fairbanks.....	dis 50¢	
Forsyth Scale Co.....	dis 45¢	
Howe's.....	dis 20¢	
Chatillon's Grocers'.....	dis 40¢	
Chatillon's Eureka.....	dis 25¢	
Family Universal.....	dis 50¢	
Family Favorite.....	dis 30¢	
Family Turnbull's.....	dis 30¢	
Scale Beams, List of Jan. 19, 1888.....	dis 0¢	
SCRAPERS.		
Adjust. Box Scraper (S. R. & L. Co.).....	\$6.50, dis 20¢	
Box, 1 Handle.....	doz \$4, dis 10¢	
Box, 2 Handles.....	doz \$6, dis 10¢	
Foot.....	dis 45¢	
Ship, common.....	doz \$3, net	
Wilson Mfg. Co.....	dis 10¢	
SCREW DRIVERS.		
Douglas Mfg. Co.....	dis 20¢	
Disston's.....	dis 40¢	
Cowles Mfg. Co.....	dis 20¢	
Stanley Rule & Level Co.'s Var. Hdl's.....	dis 50¢	
Stanley Rule & Level Co.'s Black Hdl's.....	dis 40¢	
Ratchet.....	dis 33½¢	
Clark's Patent.....	dis 25¢	
Shepardson.....	dis 25¢	
SCREWS.		
Standard new list, Feb. 15.		
Flat Head Bright.....	75¢	
Round Head Blue.....	70¢	
Flat Head Brass.....	75¢	
Round Head Brass.....	70¢	
Flat Head Blue (add 2½ % to net).....	75¢	
Brass and Silver Capped.....	40¢	
Japanned Flat Head.....	70¢	
Coach, Patent Gimlet Point.....	dis 75¢	
Coach, Common or Lag.....	dis 60¢	
Bed.....	dis 10¢	
Machine, Flat Head, Iron.....	dis 55¢	
Machine, Round Head, Iron.....	dis 50¢	
Bench, Iron.....	dis 50¢	
Bench, Wood, Hickory.....	doz \$3.00, dis 10¢	
Bench, Wood.....	dis 20¢	
Hand, Wood.....	dis 20¢	
Hand Rail, Sargent's.....	dis 60¢	
Hand Rail, Humason, Beckley & Co.'s.....	dis 40¢	
Hand Rail, Am. Screw Co., list Jan. 1, '81.....	dis 70¢	
Jack (Wilson's).....	dis 25¢	
SCREEN FRAMES AND FIXTURES.		
Standard Window Screens No. 1, doz.....	\$4; 2, \$5	
" Door.....	No. 5, \$15; dis 50¢	
" Window Corner Irons, No. 3, doz.....	\$1; \$2	
" Door.....	No. 6, " " \$3	
" Door Latches, doz.....	\$3.60, dis 50¢	
Porter's Patent Window and Door Screen Frames.....	dis 30¢	
PER DOZ. SETS.		
In Im. Bl'k		
White. Walnut.		
No. 30.....	\$4.75 \$3.25 w	
No. 31.....	2.25 4.00	
No. 32.....	5.50 6.75	
No. 33.....	6.00 7.50	
No. 30.....	9.00 11.00	
Porter's Corners—		
No. 0. Corners and Sticks complete for a		
three-foot window, doz sets.....		\$4
No. 1. Set for Window, doz sets.....	\$4.40; Nickel, \$5.60	
No. 1½. " "		

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MANUFACTURED.

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Barn Door Hanger & Stay Roller.

In offering to the trade of 1886 our Celebrated **Wrought Iron Hangers and Stay Rollers**, special attention is called to our **Iron Clad Track** in connection with our Hangers. It is made complete, only requiring hammer and nails to attach it to the building. We make the broad claim that whoever uses our Hangers and Iron Clad Track has the best device known for sliding doors. These hangers never break; can not get off the track, and work so easy that they can be operated by a child. Every pair guaranteed to give satisfaction. For sale by hardware dealers generally.



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THE

Most Popular Seat ever Produced.

(PATENTED)

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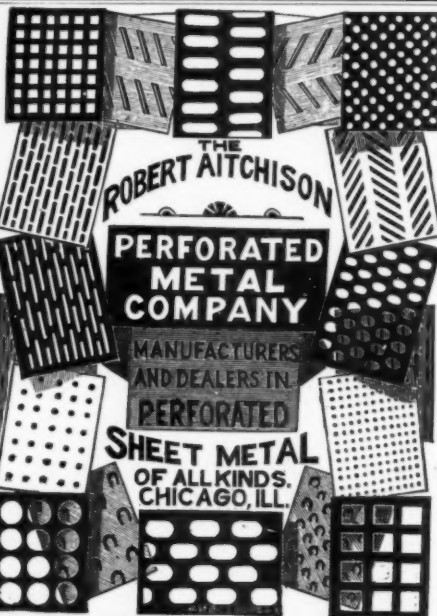
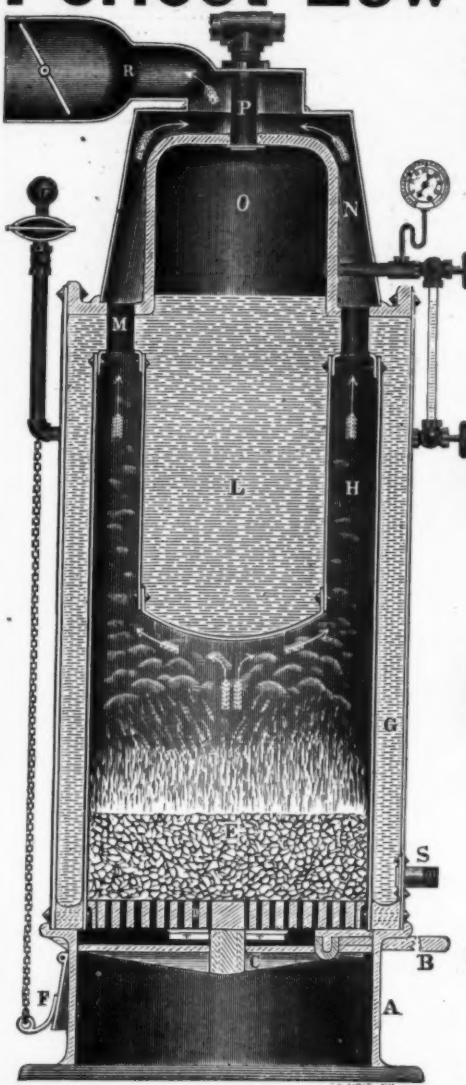
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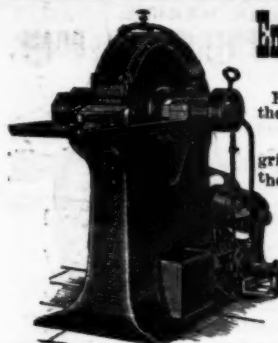
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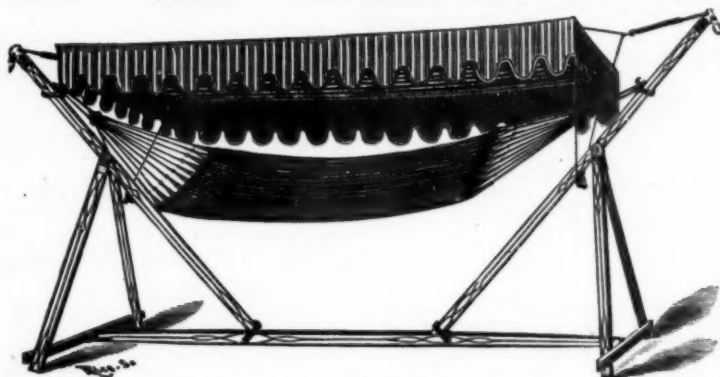
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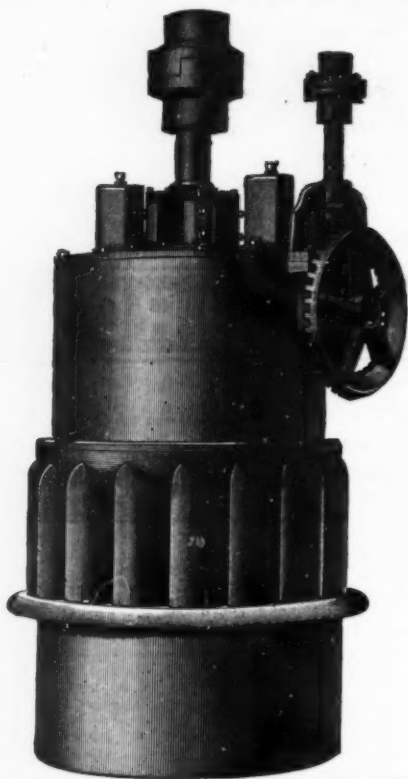
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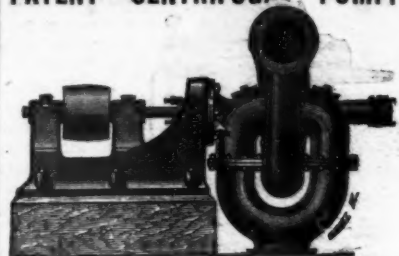
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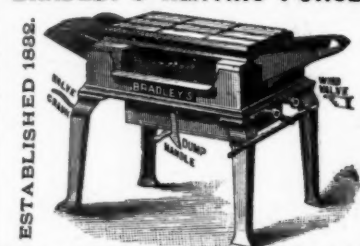
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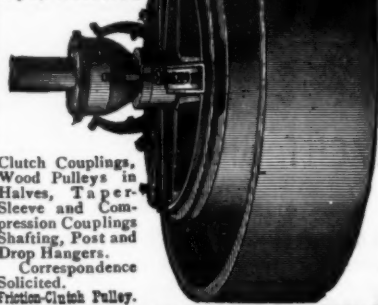
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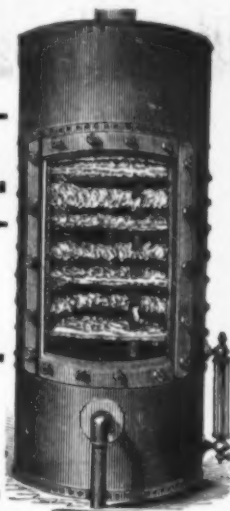
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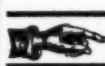
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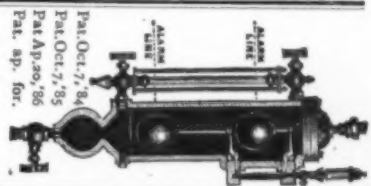
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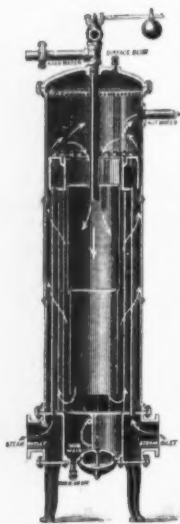
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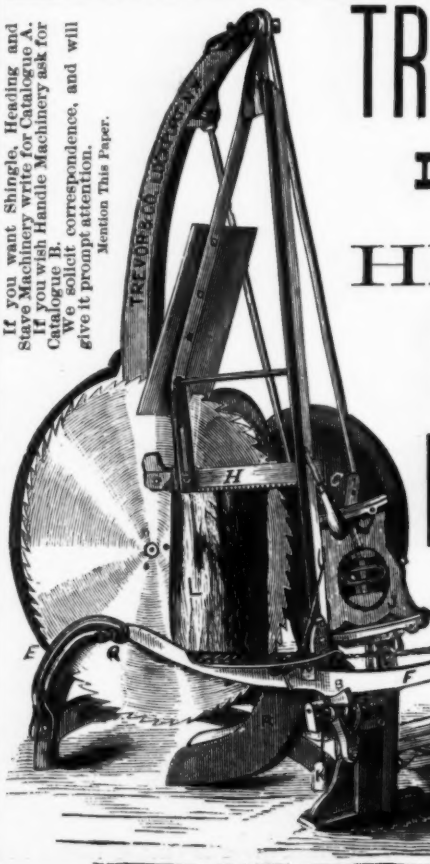
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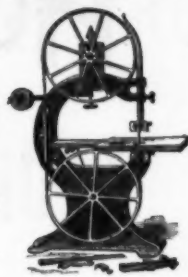
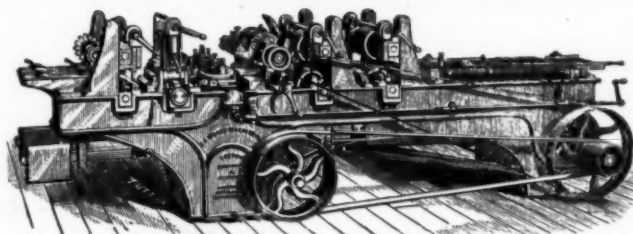
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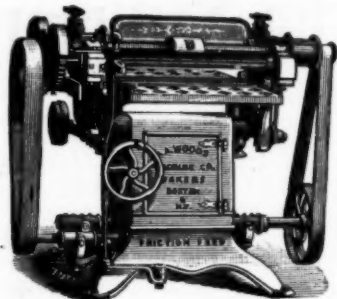
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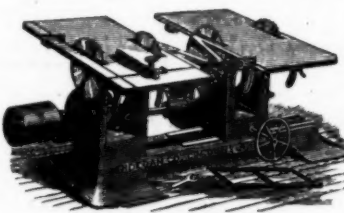
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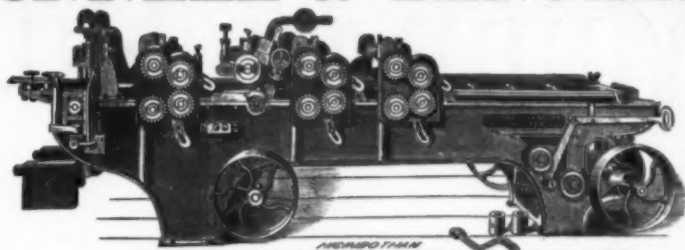


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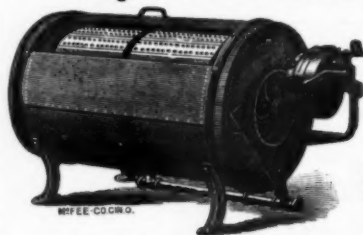
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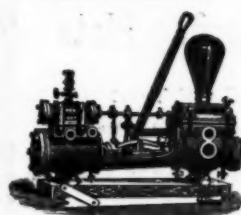
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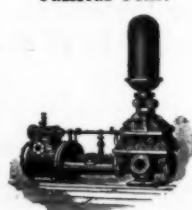
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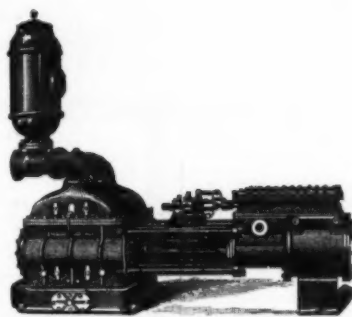
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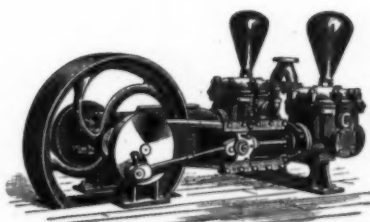
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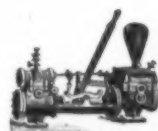
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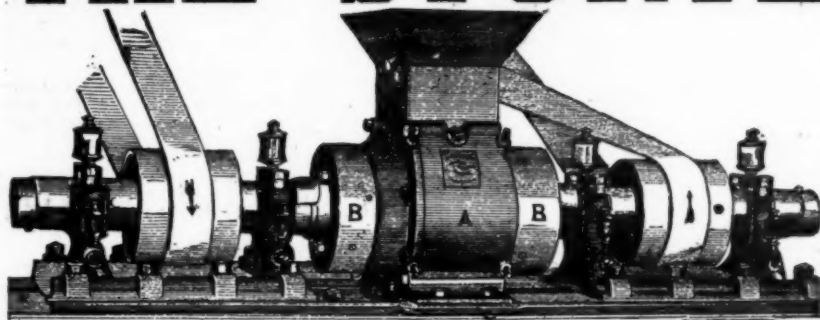
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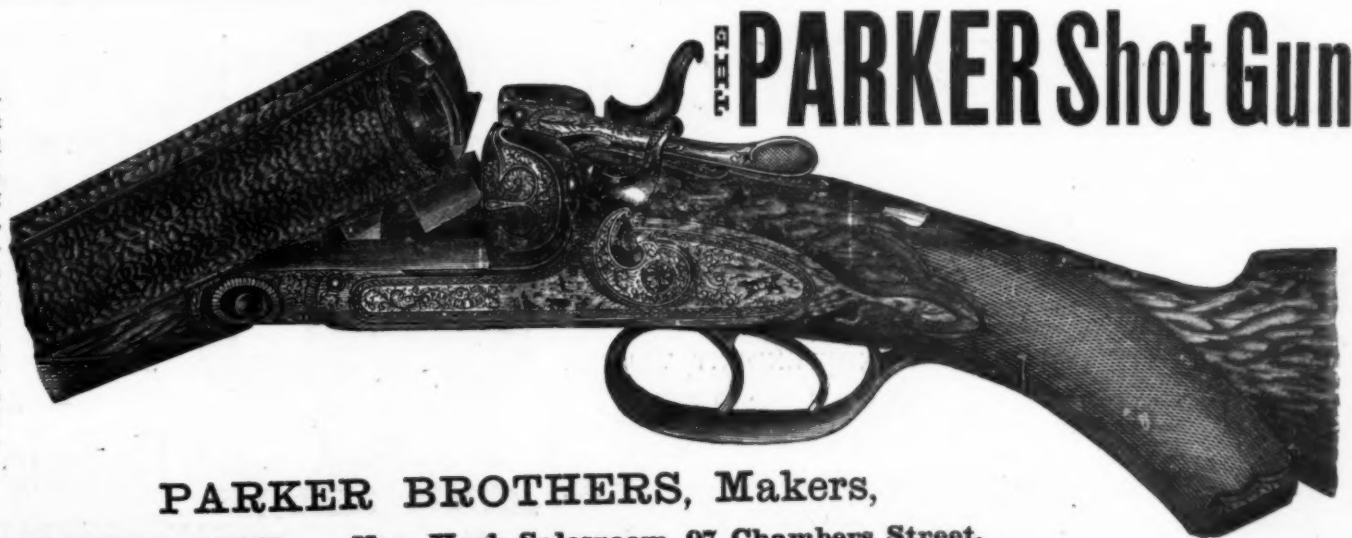
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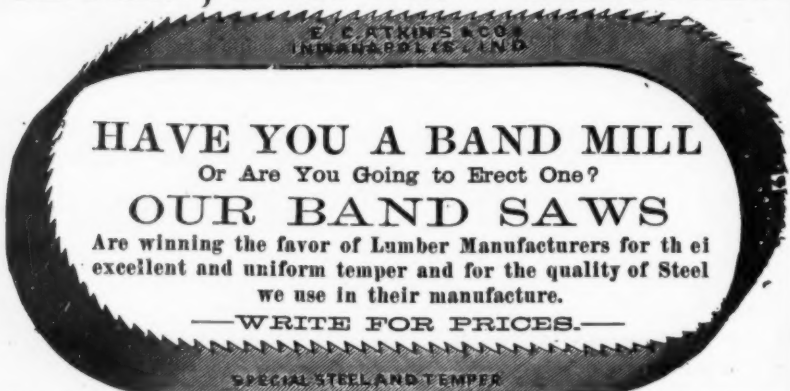
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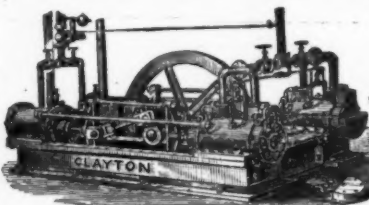
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